



OCCASIONS ONLINE

A COLLECTION OF PRIZE-WINNING WORKS
PRODUCES BY STUDENTS OF
THE PROGRAM FOR WRITING AND RHETORIC

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AIRFOIL LOCAL FOOD DESIGN PROPOSAL

NICHOLAS RENNINGER, PIERRE GUILLAUD, PAUL MCCLERNAN, ERIC ZHAO



Aggregate Informational Resources for local Food Organization, Identity, and Logistics



Introduction

The Shed would like to be a clearinghouse of information for the local foods community; The Shed means to collect and distribute local foods information to its primary stakeholders: **consumers, producers, non-profits, distributors, and sellers.**

To accomplish this goal, The Shed needs a user-centered informational resource useful to all of its varied local foods stakeholders. This local foods informational resource should be maintained and adapted by the **users**, should be **searchable**, and should help users to understand the local foods organizational network in Boulder.

Our solution, detailed in this proposal, is for **The Shed to implement a web-based wiki.** Fittingly, according to Wikipedia, a “*wiki is a website on which users collaboratively modify content and structure directly from the web browser*”. A wiki will allow The Shed to become a hub of local food information with minimal investment.

Outside of Wikipedia, there are wikis for almost every conceivable organization or topic. The software used to make a wiki is openly available, and our proposal shows a variety of ways to create a wiki. Some of our proposed solutions do not even require a website developer; and some of those require less than a day to get set up.

In this proposal we'll walk you through an overview of our wiki design, how users would interact with the wiki, how the wiki could be moderated, and finally a section with some research on how to implement the wiki.

Our Wiki Design

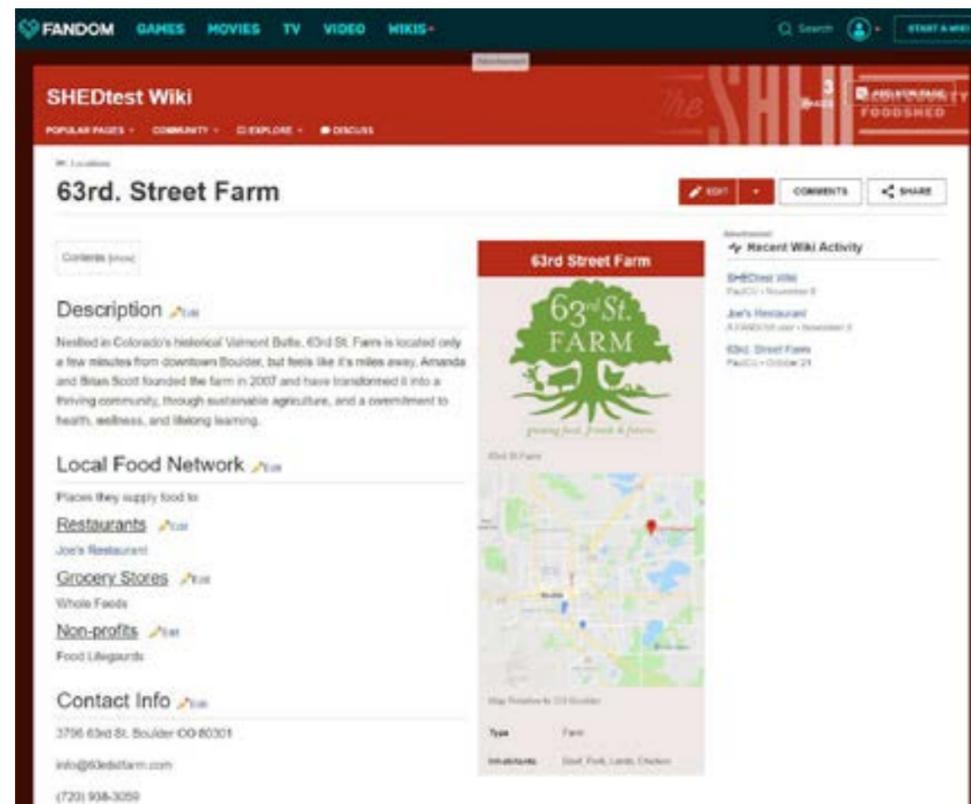


Our proposed design is to create a wiki website for the local foods community. The Shed would host this website either externally or internally. Our design is based on three fundamental design principles focusing on three core aspects of the creation of a wiki, all of which will be explained in later sections:

- A wiki is **stakeholder-built**. To make this design feasible for The Shed, we had to make sure that this design can be built and molded by the community of users themselves.
- A wiki has **searchable content**. If the information is not searchable by the entire local foods community, then the information is useless.
- A wiki allows for **cross-linked organizations**. All of the organizational pages on the wiki will contain a “Local Foods Network” section, which shows the organization’s connection to all of the other classes of users.

Wiki Mockup

To mockup our wiki design, we used wikia.com, explained in our hosting section, to create a mockup of a Shed wiki. The wiki was set up in less than a day, and it required no coding. It can be deeply **edited by anyone**, and it has a **built-in search** capability.

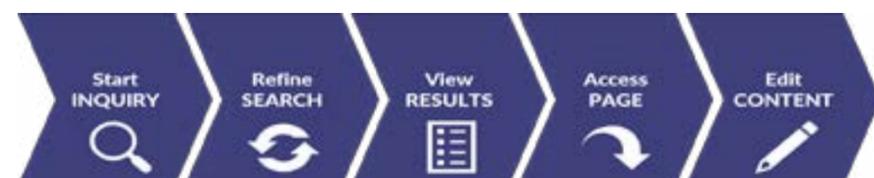


The mockup website can be seen here: https://shedtest.wikia.com/wiki/SHEDtest_Wiki

Each wiki page has a description of the stakeholder's organization, their logo, their contact info, and most importantly, a **“Local Food Network”** section with a list all other stakeholders they interact with, including:

- *Restaurants*
- *Grocery Stores*
- *Farms*
- *Non-profits*

How a User Interacts with the Wiki



A wiki is a great way to aggregate information about many different topics, but it loses all its usefulness if it cannot be easily

navigated. To solve this problem, it is important for the wiki to have a way to find exactly what the user wishes to know more about. This is done through a search functionality.

Start inquiry

An inquiry starts by typing either keywords or specific organization names in a search bar. This search bar can be present on both the Shed's website and on the wiki, if the wiki is externally hosted (more on hosting options in **Where to Host the Wiki**).

Refine search

The search can be modified and refined in multiple ways:

- Filter by tags that would match the most common definitions of local food.
- Select the maximum distance within Boulder County.
- Filter by types of stakeholder (Farms, Restaurants, Non-Profits, etc.).

View results

The inquiry results in a list of pages corresponding to the user's inquiry. The results can be further refined if necessary using the same method as mentioned above. If the result does not exist, the user is presented with an option to add a page to the wiki.

Access page

Accessing the desired page gives the user access to all pertinent information about the organization that is available on the wiki. This includes the contact information of the organization, its address, a few paragraphs describing it, and a list of cross-linked local food organizations.

Edit content

The user is able to add to or edit the content of the page if deemed necessary. The page editing is subject to verifications by different methods of administration to keep the information accurate and on topic (Moderation is discussed further in **Wiki Moderation**).

Designing to Stakeholder Needs

Our design is centered around the three concepts introduced earlier: **stakeholder-built, searchable content, and cross-linked organizations**. From these design principles, we detail in this section how each of the target stakeholder groups (**consumers, producers, non-profits, distributors, and sellers**) fits into our design.

Stakeholder-built

The Shed can try multiple implementations of wikis without large resource investment. Also, a wiki's information is inherently user-centered, as the users themselves create its content.

Stakeholder: Consumers

During the design process, we researched what types of designs were most appealing to the stakeholders that were being targeted. Among these stakeholders, the consumers were the main target of The Shed. For this stakeholder, it was discovered that the most tedious part of becoming more informed about the local food system is the large amount of searching that must be done both between different websites and within a single website.



Looking back at the needs of the consumers, the design of the wiki is convenient in the fact that it alleviates the former issue of travelling from site to site through the nature of the wiki itself. All relevant information for consumers is provided from other stakeholders and contained within the central hub of the wiki so that all navigation may be accomplished with ease. Additionally, search options are also available, greatly simplifying the organization of information and adding the ability for users to quickly access specific bits of information.

Stakeholders: Producers, Distributors, Non-Profit Organizations, and Sellers

The remaining stakeholders are producers, distributors, non-profit organizations, and sellers. This group will provide details of their services; this could include anything from the type of produce they grow and sell to information about what they do. The main incentive for these stakeholders to participate is that by doing so they will receive a convenient and free method for advertising themselves.

Our design allows for the community to create and modify pages. An organization may go one step further and claim their page if it already exists. These pages include information about the organization as well as its location and contact info. Additionally, each organization will be cross linked, providing a clear, concise mapping of where food originates and where it goes. In this way, producers, distributors, non-profits, and sellers may increase publicity and contribute to the local food system at the same time. All of this contributes to helping The Shed build out a local foods network in Boulder.

Searchable Content

A cornerstone of The Shed's goal of becoming Boulder's local food clearinghouse is the compilation of local foods information. However, this compiled information is functionally useless without a user interface to effectively index and search this compiled information. All wiki software standards natively support searching, and they can be easily extended with custom indexing / search engines to allow The Shed to further customize how users will ultimately interact with wiki data.

Cross-Linked Organizations

During The Shed's original design needs presentation, The Shed representative (Veronica) spoke at length about the motivation behind The Shed's initiative to be an informational clearinghouse: *The Shed would like to work with more non-profits and act as the non-profit community informational hub*. Like any group of non-profits operating in the same field, the local foods non-profit community is at risk of either under or over coverage of non-profit initiatives and their geographic distribution. To put it more concretely in an example: *How do the multiple food rescuer non-profits ensure that they are utilizing local foods from all available farms / suppliers, and that they are not overburdening they farms / suppliers they do work with?*

Our design solution, a wiki, addresses the problem of knowledge sharing and local foods community networking. When a local foods stakeholder views a page for another local foods' stakeholder, the page will contain organized links showing the page owner's local food network. This capability is easily implementable or inherent to all wiki implementations and is directly in line with The Shed's clearinghouse aspirations.

Wiki Moderation

One of the largest challenges associated with a wiki is ensuring that its information is factual. While high-profile wikis like Wikipedia and some fan pages on Wikia (take the Harry Potter fandom wiki for example) are self-regulating by their communities, this should not be counted on for a brand new wiki. These wikis need no authoritative moderation because they have a high number of user editors. Wikipedia achieves this with sheer numbers of users, so even with the tiny fraction of users who edit pages, this still results in a sufficient amount of moderation.

The Harry Potter wiki has a higher ratio of editors to readers than Wikipedia (though still small), since it is a targeted topic and the dedicated members of the Harry Potter community are much more invested in the accuracy of each page. Because the Shed is a narrow topic, it may never be fully user moderated, but will have some combination of authoritative and community content moderation.

Community Moderation

Initially, while the Shed is building its user-base to achieve **community moderation**, it will need to do two things: build out some initial pages and decide on administrator levels moderation. The former is not difficult, but it does require a labor investment; it could either be achieved by a freelance contractors or a volunteers to manually create as many Boulder County stakeholder pages as possible. The main idea of this is to make sure that when the wiki is launched it attracts users by virtue of already being a good source of information. This also allows the desired format and use of the website to be easily to seen. The second thing, implementing a moderation scheme is more difficult.

Administrator Moderation

Administrator level moderation could take several forms. One simple option is a volunteer webmaster that overlooks wiki changes on a regular basis. Another more complex solution is the idea of having each page be claimable by the stakeholder (farm, restaurant, etc.) similar to how celebrities can verify their Twitter accounts.

There would need to be some small type of identity verification by the Shed, but this would give the stakeholder more control over their page, and theoretically decrease the amount of moderation that this page would need. How much power a verification gives still needs to be determined, but they could have as complete control or only control over the description and the pictures. The idea is that the more verified pages, the less overall moderation the wiki needs.

Where to Host the Wiki

There are several options that the Shed could use in order to build their own wiki, each with its own benefits and drawbacks. The wiki could either be hosted on an external service or an internal hosting scheme. For an externally hosted service, users would be redirected from the Shed's website to a separate domain that houses the wiki, but the Shed would have less control of the website. Internally hosting would involve building the functionality of a wiki into their current website. This would involve hiring a web developer via a contractor or computer science student to implement wiki software. While there are many more possible ways to create a wiki, several specific options are tabulated below. For full details on each option, see appendix A.

Hosting Location	Wiki Service Provider	Hosting Cost Offset	Major Drawback
<i>External</i>	wikia.com	Free (Supported by Banner Ads)	Little control of visual design
	ourproject.org	Free	Must get open license for wiki
<i>Internal</i>	MediaWiki	Free (Open Source)	Doesn't work with Squarespace (the Shed's current host)
	TiddlyWiki	Free (Open Source)	Takes the most effort to build

Next Steps

The next steps for this project design is to discuss how the information used by AIRFOIL would be obtained, classified, and displayed on The Shed's website. The team will work with the client to establish a method for hosting the wiki. Additionally, the details of moderation must be addressed. Furthermore, Some preliminary information will need to be collected to add to wiki pages before the launch of the wiki in order to attract a user base. These user then will expand the usefulness of the wiki on their own.

Summary

In summary, in order to address the Shed's goal of being a hub of information for Boulder County local food and given the financial and labor constraints, the team suggests making a Shed wiki. Since anyone can edit a wiki, this would allow the Shed to maintain a large base of information with minimal labor. Also since it is online, it will be inexpensive to maintain. A Shed wiki would provide a unified platform for all stakeholders to inform the public about their impact on the local food movement. There are some considerations specific to making a wiki, including making decisions on the level of moderation, as well as the eventual home of the wiki online.

Appendix A - Wiki Hosting Specifics

External WikiHosting

Wikia.com

This was the service used for the wiki mockup shown in the presentation given in November. This mockup website can be seen here: https://shedtest.wikia.com/wiki/SHEDtest_Wiki

While this site is primarily marketed as a wiki for fans of media, such as books, TV shows, and video games, it is a functional wiki and would serve as a hub of information for local food. It is very easy to edit, requiring no coding experience to format each page save for the most high-level changes. The downside of wikia is that the Shed wouldn't have much control over the website's overall design. For example, there is a navigation top bar on every page that could not be removed that redirect users to other fan wiki pages. This could be confusing for the Shed's users. Perhaps the largest drawback is that the website's server cost is entirely paid for with ads and there is no way to remove them. The Shed would not have any control over the content of these which could lead to a negative user experience. Despite these drawbacks, wikia is a viable option for a Shed wiki, and is perhaps the easiest option to get started.

Ourproject.org

Another free website that could host the Shed's new wiki is ourproject.org. OurProject is a website with aims of "hosting and boosting the cooperative work done in multiple domains (cultural, artistic, educational)" where people can share their projects with the one caveat that it must be under some type of open license. While this would need to be decided in order to be hosted there, an open license does seem to both be in alignment for the Shed and for the wiki concept. As opposed to Wikia, the Shed would have near complete control over the visual design of the page, to a certain point (it will still look like Wikipedia for example). It should be noted the OurProject also has a visual text editor, so you do not need coding experience to edit a page. The most difficult step would be registering the Shed as a "project" with them. OurProject may be the best long term option for the Shed, as it provides an ad-free platform to distribute the educational information about local food in Boulder County.

Internal WikiHosting

MediaWiki

There are many open-source (free) software packages available to make your own wiki. The Shed's current website host, Squarespace, doesn't natively support wikis, so it would need to be added in using external code. The most popular software package is MediaWiki, the

software that Wikipedia is built on top of. This software is relatively easy to use, but it would require someone with web development experience to implement. The biggest problem with MediaWiki specifically is that it will not be able to be used with Squarespace, the Shed's current website host. They don't support the programming language that it is written in (PHP).

TiddlyWiki

A work around is to use another software package such as TiddlyWiki. This specific wiki package was initially designed to be a personal wiki, i.e. just one user, but even with a cursory internet search, the team found several plugins to add to its functionality. One was found called TW5-Bob, which allowed for multiple simultaneous users. Another, called Visual Editor allowed the wiki (as the name would suggest) to be edited using a visual editor, i.e. no coding to add to a page.

Appendix B - Team Bios

Pierre Guillaud

Pierre Guillaud is a senior undergraduate Aerospace engineering student pursuing a computer science minor at the University of Colorado at Boulder. His primary areas of expertise are software development and embedded system integration. Pierre Guillaud has a strong work ethic and a lot of experience with teamwork developed through internships and collegiate projects which have in large part consisted in planning and developing technical designs.

Paul McClernan

Paul McClernan is a junior at the University of Colorado Boulder with a major in Aerospace Engineering and a minor in Computer Science. He is a creative problem solver and has both personal and professional engineering projects experience. He also works as the AV student manager for the UMC, a building on campus. This involves supervising his staff and running the audio and visual technical aspects of events for VIP clients. He is also very involved in CU's Quadcopter club, who is currently building an autonomous swarm.

Nicholas Renninger

Nicholas Renninger studies at CU Boulder, where he will be graduating in May 2020 with a BS/MS in Aerospace Engineering Sciences with Minors in Computer Science and Applied Mathematics. He has 2 years of experience as a software research assistant in a Far Ultraviolet Optics Sounding Rocket lab at LASP, and has worked for six months as a Blade Design Aerodynamics Software Development Intern at Siemens' Wind Turbine Blade R&D office in Boulder, CO. He also interned with Equinox Interscience, where he assisted on a project for SWRI and JPL to develop a high-altitude balloon telescope payload. These varied professional and academic experiences have all involved engineering design and leave Renninger with design experience he carries with him to every new design adventure.

Eric Zhao

Eric Zhao is a senior at the University of Colorado Boulder pursuing a major in Aerospace Engineering and a minor in Computer Science. His strong work ethic and problem solving skills lead to him taking on many roles in a project. Eric has experience in computer programming, structural analysis, and the use of CAE tools. He currently works as a course assistant for the Statics Aerospace course, where he manages weekly laboratory sessions, advises students on course projects, and organizes the course website.

BUTTERFLY PAVILION

by ROBERT ROSENTHAL, HENRY VENNARD AND ANDREW OLIVER



Executive Summary

We are three students enrolled in a technical communication and design course for the Spring of 2018 at the University of Colorado Boulder. The capstone project for this course was working with a client to implement and build upon the skills and techniques learned throughout the semester. The purpose of this report is to better understand the habits and needs of current and former members. This information was determined through a survey, which asked questions in the form of multiple choice and long answer questions. Current members and former members took different surveys, with questions that examined different metrics for each. We received in total 558 responses, with 290 from members and 264 from former members.

For current members, we looked at the things that people liked and didn't like about Butterfly Pavilion. From looking at the data we can make a few recommendations to better accommodate current members and increase renewal rates, as well as highlight issues that need additional research. Currently, member event attendance is low, with 52% of participants saying they did not attend a single event. We recommend holding exclusive member events such as an early access night for a new exhibit. As well as surveying members to find exactly what they want with these events. In addition, members preferred certain exhibits and types of invertebrates. The favorite exhibits were Wings of the tropics and Rosie the tarantula. The favorite types of invertebrates were lepidopteras, mollusks and arachnids. To better cater to the interest of your members, exhibits should be tailored to these trends. According to member requests, we also recommend improving the indoor play area and to consider creating an outdoor play area.

For past members, we mainly looked at reasons for people not renewing. We found that of the 5 reasons we surveyed, only 3 produced conclusive results that pointed to a trend. These were geographic reasons, financial reasons and that they didn't visit enough. To combat these issues, we recommend offering discounts to members who live farther away, offering discounts on renewals, and sending out reminders to people who haven't visited Butterfly Pavilion very much during the current calendar year. We also found that former

members were disappointed with the variability of the experience, with only 22% of them saying that Butterfly Pavilion regularly changed their exhibits. We believe small changes could make a big difference in the perceived variability. Creating more advertising about new exhibits as well as changing the color schemes, wording or arrangement of current exhibits could help to make the experience seem different and more interesting for members.

Purpose

The goal of this project was to better understand Butterfly Pavilion's membership base. Currently, membership renewal rates are low, around 25%-30%. By better understanding the wants of current members and the reasons for former members not renewing, we will make recommendations that will help Butterfly Pavilion to increase their renewal rate. For members, we looked at how satisfied people were with their membership and how much value people feel they get out of their membership. For former members we looked at what makes people not renew their membership, and what changes could bring people to renew.

Methods

The survey began with 5 general questions, which gathered information on key demographic information like income level, age and number of children. After these general questions, the survey splits into two parts. Participants were asked whether they were current or past members. Past members were asked one set of questions, while current members were asked a completely different set of questions. This left us with essentially two surveys, and two sets of data to make recommendations from. On the member survey, we asked 15 multiple choice questions and 1 long answer question. On the former member survey, we asked 9 multiple choice questions and 2 long answer questions. We analyzed the short and long answer questions separately within each set, since they produced data that required completely different kinds of analysis to interpret. For the short answer questions, which produced hard data in the form of numbers, we made figures and determined percentages for important values. This allowed us to easily compare like sets of data, as they were in the same format. For the long answer questions, which produced long strings of text that are difficult to analyze, we used keyword searches in Excel to look for trends and recurring themes in people's messages. We made our recommendations based off of the common trends that we saw. Since most of the questions that we posed were multiple choice, it should be assumed that a specific statistic we are talking about is based on a multiple choice response question, unless stated otherwise.

If data is available that supports a recommendation for an interesting trend, we will present it and explain one possible solution. If there is an interesting trend, but there is not any data that points to a solution, we will still present it, but we will make clear that our recommendations are purely speculative.

Results & Recommendations

Benefits of Interest

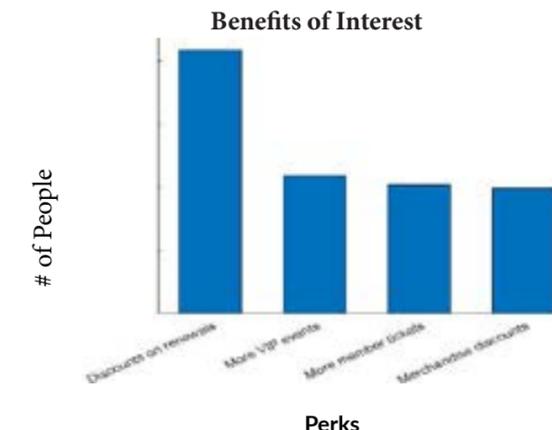


Figure 1: Bar graph of perks current members would like to see

Perks
[Occasions Home](#) [PWR Home](#)

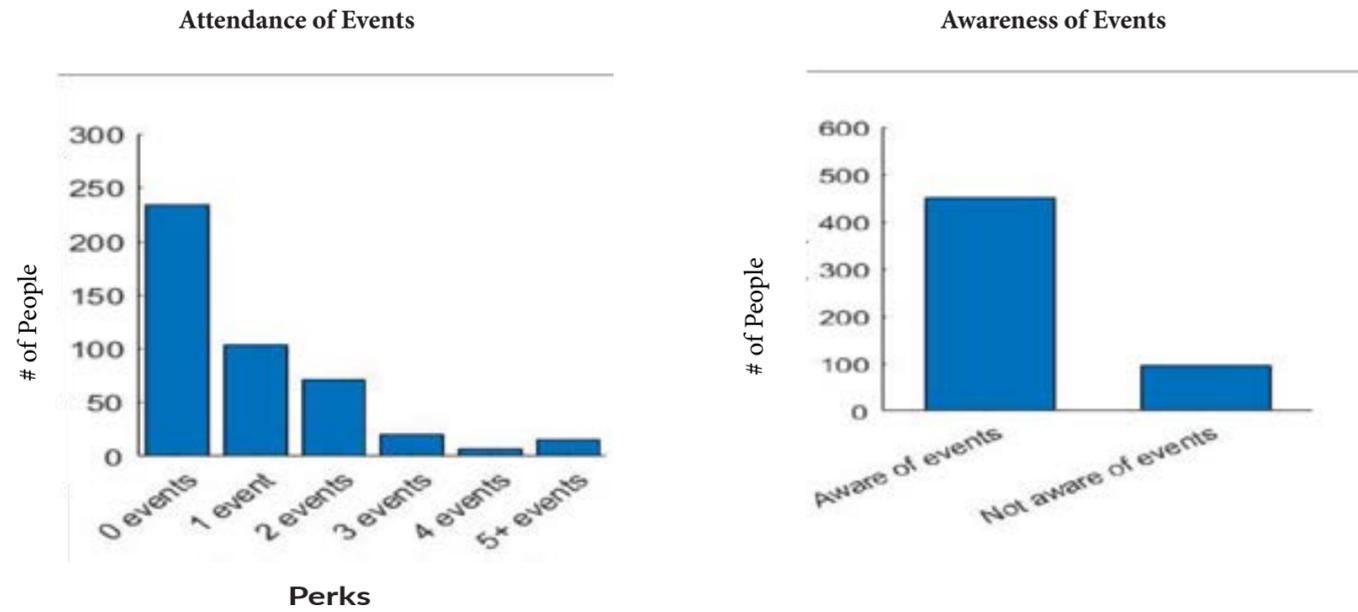


Figure 2: Total Awareness of events and actual attendance of these events

Improve attendance of member events

Members said they wanted to see more VIP events included in their membership. This is shown in Figure 1, with 109 participants or 20% in favor of more VIP events. Butterfly Pavilion already has member VIP events, but it is clear from our survey that members are not very satisfied with the current quality and/or content of these events. Figure 2 shows awareness and attendance of these member events. 82% of participants reported they were aware of the events, but 52% of participants did not attend a single event. These statistics were almost identical for both current and former members, which shows that this is likely a persistent issue. Gathering more specific feedback from members on what they would like to see at future events would provide valuable insight into the source of the issue. This feedback could also be used to develop ideas for more appealing events and increase overall attendance.

Additional member benefits

Figure 1 shows what perks current members would like to see in the future with their membership. We found that more events, guest passes, and merchandise discount received relatively high response rates, but discounts on renewals was the most popular perk that members would like to see. Through responses to an open ended question regarding benefits, we found that in addition to monetary perks and more events, they would like to see more exclusive benefits in general. Many of the comments suggested things like a members only day, or early access to new exhibits. The actual implementation of a members only day would be difficult, given the nature of your organization. However, we recommend offering members early access to new exhibits, which could be incorporated into a current member event or could be held completely separate. Doing so gives them a feeling of exclusivity, and allows them to look at the new and exciting exhibit in a less crowded environment. Such perks add more value to your membership, and will make members happier overall at a low cost to your organization.

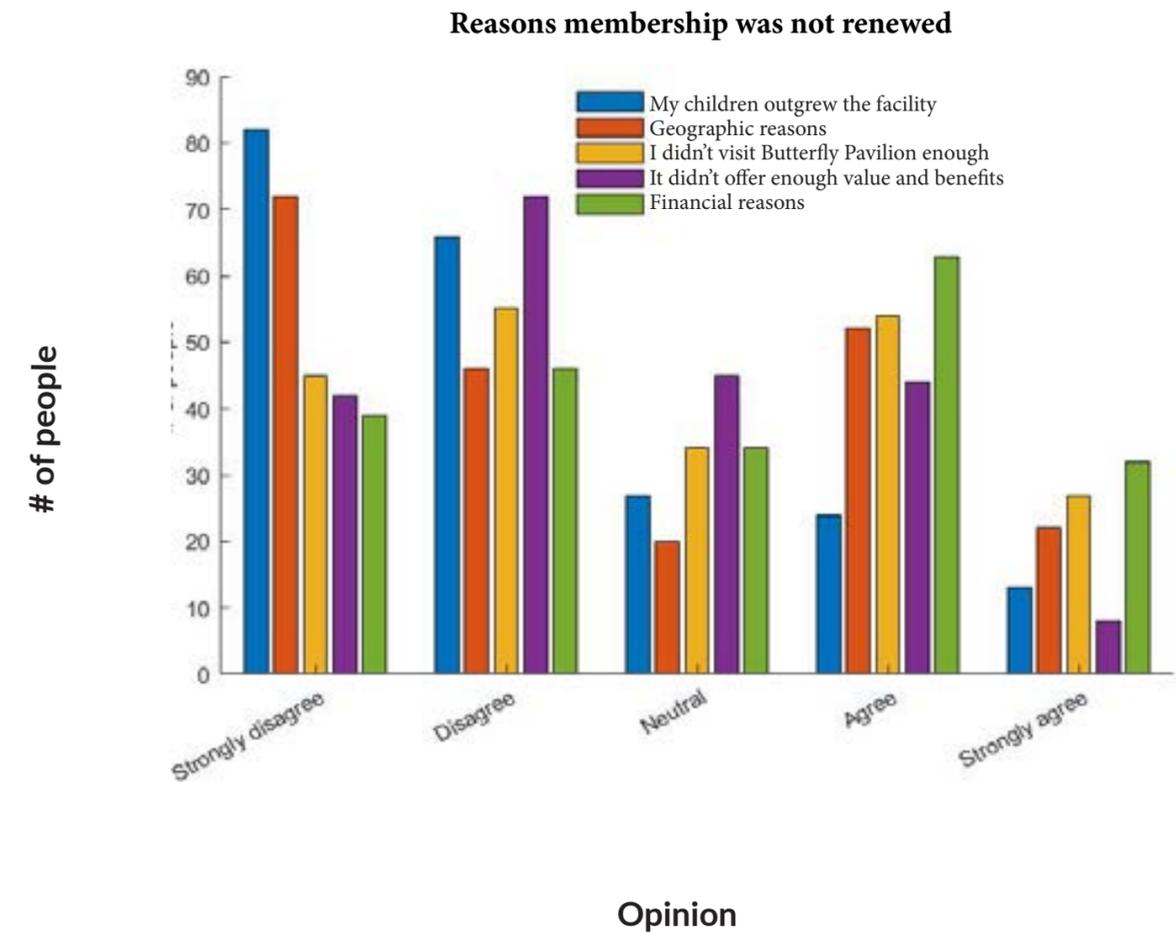


Figure 3: Reasons membership was not renewed

Take a more proactive approach to members who are high risk for not renewing

The best way to better understand why people don't renew is to look at the reasons why members have not renewed in the past. In this survey, we looked at 5 different factors for why people didn't renew, which are all shown in Figure 3. We found that 3 of these reasons were major factors, while the other two were inconclusive. These three major factors were financial, geographic and that members didn't visit enough. The two minor categories, children outgrew the facility and lack of value from their membership, produced very mixed results with not enough consensus to make a strong conclusion. We will take a deeper look into the three conclusive reasons for people not renewing.

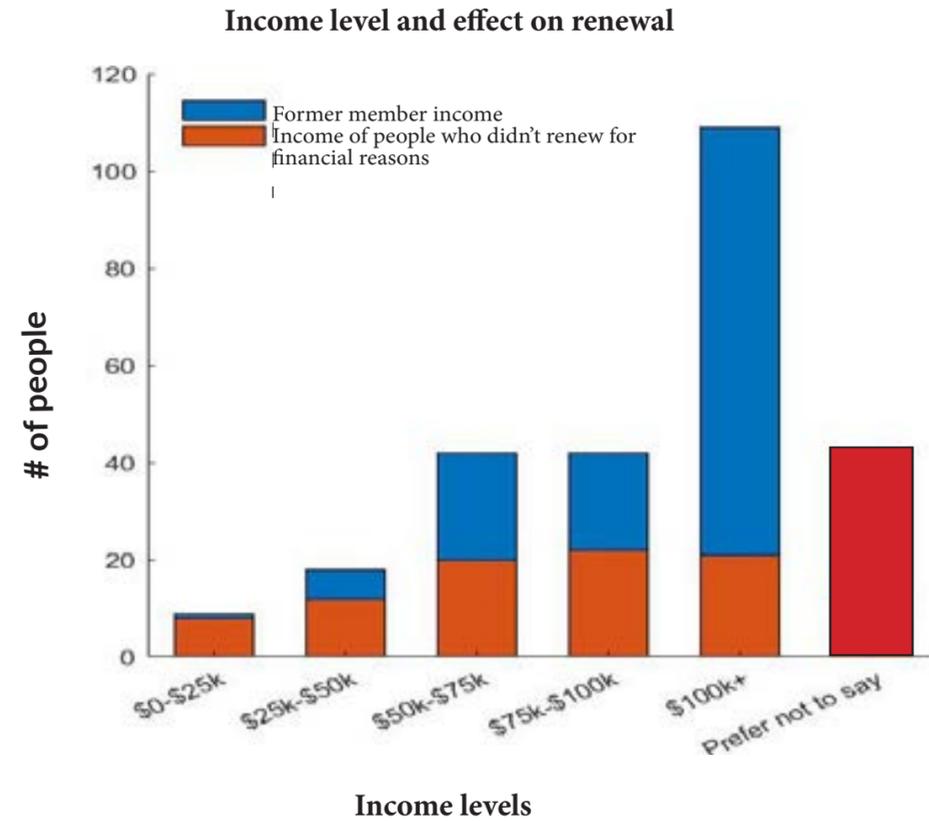


Figure 4: Income levels of non-members and Income level of former members who didn't renew

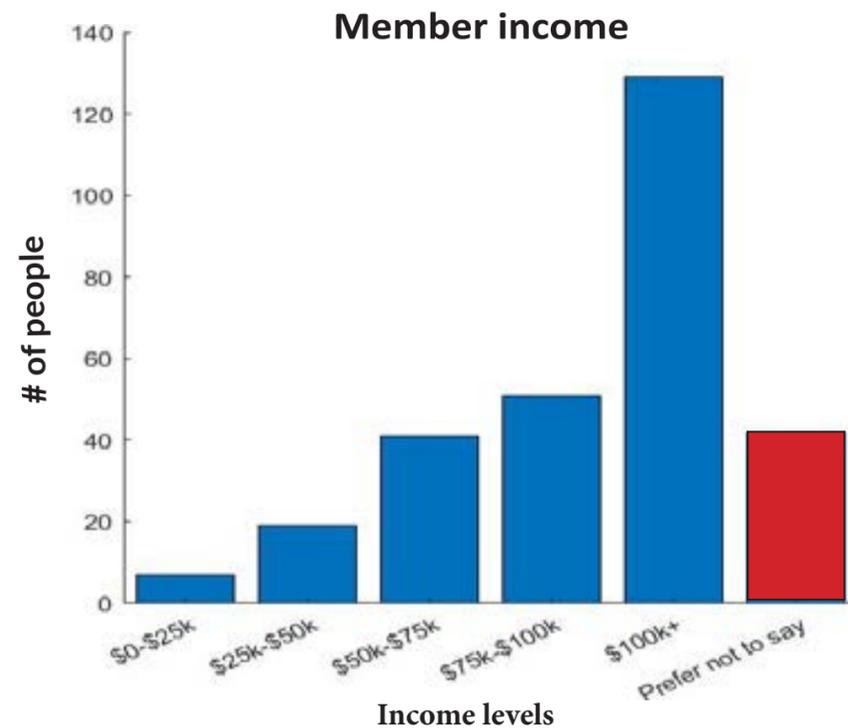


Figure 5: Member income

Figure 4 shows that people who did not renew for financial reasons have a lower average income than the general population of former members. The average income of people who did not renew for financial reasons is within the \$75k-\$100k range, while the average salary of former members is above \$100k. This value is also below the average salary of both members and former members, which is shown in Figure 5. Butterfly Pavillion should offer discounts on renewals to decrease the likelihood of members not renewing for financial reasons as well as incentivize regular membership renewal. We know from the information shown in Figure 1 that 208 people or 38% of current members would like discounted renewals, which tells us there is demand from current members for this perk. This could be done either by flat out cutting the renewal rate for returning members, or implementing some kind of rewards system for people who renew in the long term. People who are members for 2 years could be given a discounted rate, and people who have been members for 5 years could be given an even more discounted rate and so on. Either way, some kind of discount should be offered to make people more likely to renew their memberships.

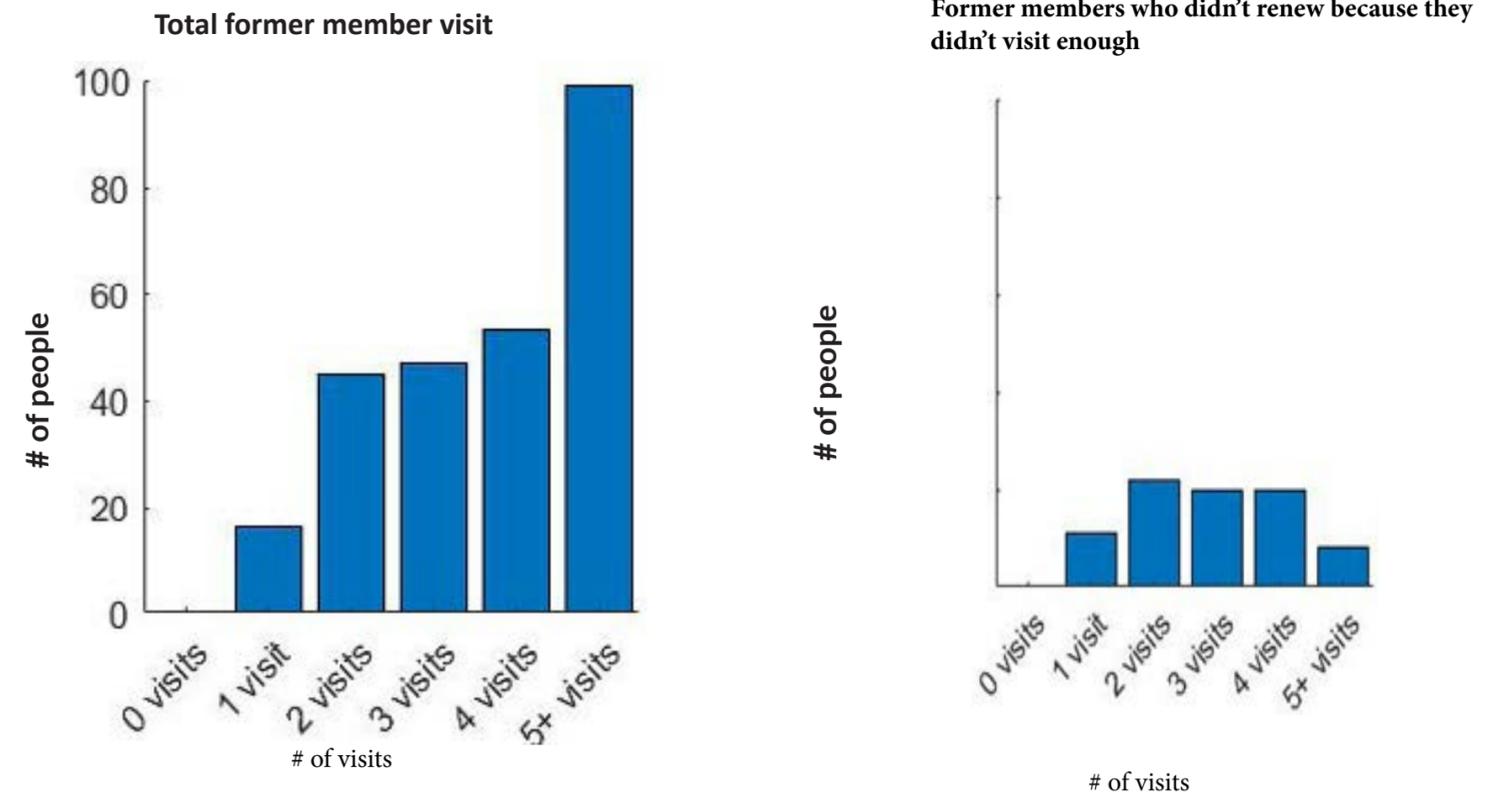
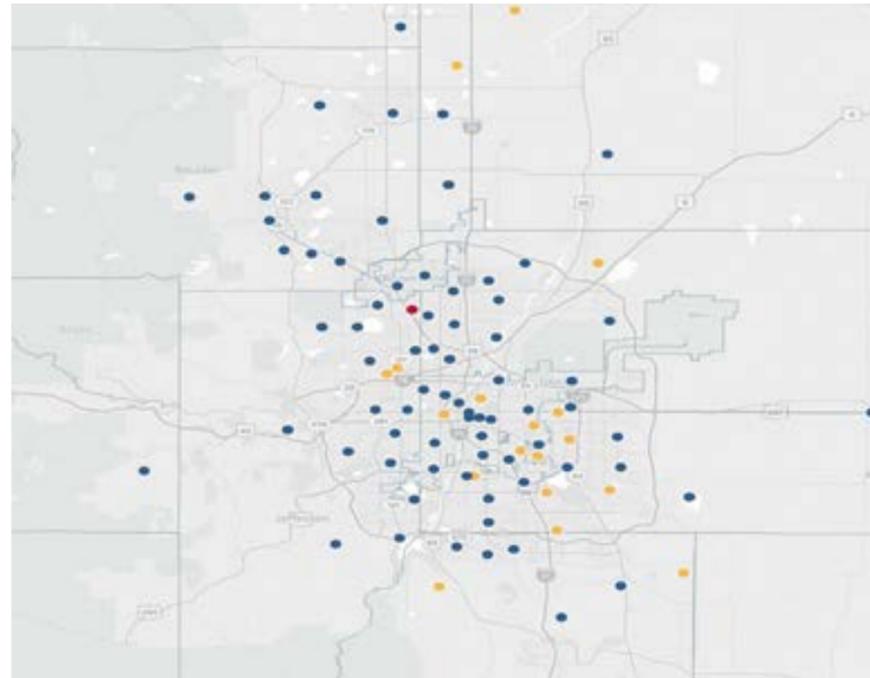


Figure 6: Non-member visitation patterns and visit patterns of non-members who didn't renew because they didn't visit enough

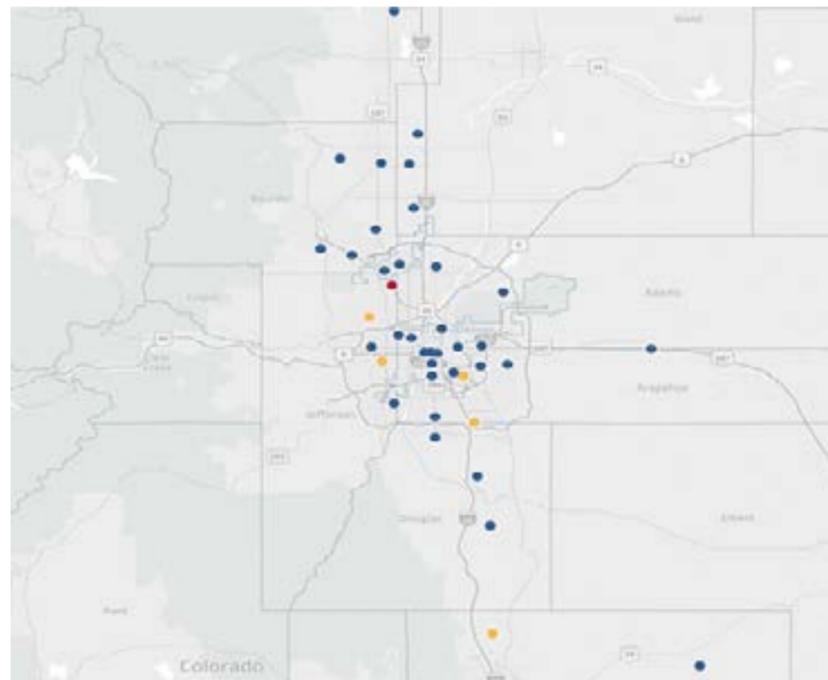
Members vs Former Members



Members / Former Members / Butterfly Pavilion

Figure 7: Map of current members and former members

Former members that did not renew for geographical reasons



Agree / Strongly Agree / Butterfly Pavilion

XC

Figure 8: Map of former members that did not renew for geographical reasons

Figure 6 shows that people who said they didn't renew because they didn't visit enough had a much lower average number of visits than the general population of former members. The average number of visits for people who did not renew for this reason appears to be somewhere within the 2-3 visit range. The average number of visits for all former members is over 5 visits, which is above that of people who didn't renew for not visiting enough. A similar trend is noted for members, who averaged well above 5 visits on average. It should be a goal of Butterfly Pavillion to get members in to visit at least 2-3 times per year to decrease the likelihood of them not renewing because they didn't visit enough. This could be done by sending reminders or offering special promotions in the gift shop to people who have visited less than 2-3 times in one year.

Figure 7 and Figure 8 show that people who did not renew for geographic reasons live much farther away from Butterfly Pavilion than the total population of members and former members. While this conclusion is fairly obvious, the maps we have provided you with should give you a good idea of how far is too far, that is, what distance are most people willing to travel to get to your establishment as well as from what metropolitan areas are people willing to travel from. Butterfly Pavillion should focus its marketing and community involvement on the areas that are determined to be close enough by the map to maximize the efficiency and effectiveness of these endeavors. Offering discounts on memberships to people who live far away from Butterfly Pavilion campus could also help to solve this issue. For instance, people who live on the South East side of Denver would be more willing to travel to your museum if they paid less for their membership.

Overall, the three biggest reasons for members not renewing their memberships are financial, geographic and that members didn't visit enough. When we wrote the survey, we intended children outgrowing the facility and lack of value from membership to be two of the biggest factors in people's decisions not to renew, and wrote our questions based on that assumption. Since they ended up being fairly unimportant, some of the questions we asked gave us results with inconclusive findings. A follow up survey with former members could be conducted to better understand exactly what kinds of financial problems influenced people's decision not to renew, whether it's better offers from other zoos or the current state of the economy. This follow up could also look at the specific reasons for why people didn't visit more than 2 or 3 times. Some potential factors to investigate could be overcrowding in the facility, lack of interest, or lack of time. This follow up could also examine whether or not people moved since they were a member of Butterfly Pavilion, as people could have originally lived much closer to Butterfly Pavilion when they were members. Also getting a better understanding of exactly how far members would be willing to drive would be useful, especially given the fact that your facility will be changing locations soon. In conclusion, the information we collected will provide your organization with valuable insight into what makes people not renew, but more research can be done into the matter to develop an even better understanding of these habits.

Implement new exhibits to improve the variability of the Butterfly Pavilion experience

We found that former members are unhappy with the lack of variability of the exhibits at Butterfly Pavilion. On the contrary, most current members reported that they did notice changes between visits. 34% of current members want to see more hands-on exhibits, 22% want more exhibits with exotic insects, and 30% want to see more aquatic animal exhibits. Members found exhibits with lepidopteras, mollusks and arachnid to be the most interesting at Butterfly Pavilion, in that order. We found this interesting given the relatively low number of mollusk related exhibits that we noticed during our tour compared to the large number of lepidopteras and arachnid exhibits. Including more exhibits like the octopus would help to meet the demand and improve the experience for many members. Wings of the tropics, Rosie the tarantula and Waters Edge were the three favorite exhibits, in

that order. Wings of the tropics is a massive asset for Butterfly Pavilion, and should be leveraged as such. A quick visit to your website does not make immediately clear that this space exists at your institution. This truly is a special space, and it should be more of a selling point for your organization than it currently is. Aswell, the other two exhibits seem to be very popular at your institution. Using these as selling points may also be beneficial, given the uniqueness factor that they bring to your business.

Nature trials was reported to be the least favorite exhibit by 38 out of 187 current members. Invertebrate world was the second least favorite, as reported by 33 out of 187 current members. Cycling out these exhibits and including new ones that are better suited to the demands of your members will help improve the quality of the experience at Butterfly Pavillion. Small changes can be made to vastly improve people's perception of the exhibit and make it feel brand new. Whether its changing the color of the exhibit or adding more obstacles for children to climb on and play with in the exhibit. Out of 202 free-form responses, 29 members stated they would like to have more hands-on activities for kids. Adding more interactive activities would increase the amount of time spent at Butterfly Pavilion as well as increase the perceived value of each visit. Some of the activities suggested by members included educational crafts such as invertebrate coloring books, as well as brief educational workshops or presentations occurring regularly throughout the day.

Make improvements to the play area

Members are interested in seeing improvements made to the play area. In response to an open ended question, 30 people said they would like to see improvements to the play area while 2 people were against it. The two members against it said they found the play area to be a distraction. Out of the 30 members looking to see improvements, 5 of them suggested bringing back the spider web. Another common suggestion was an outdoor play area. About 10 members commented that the outdoor space seemed under utilized. They were also interested in seeing a more educational oriented play area. We would recommend expanding the indoor play area and considering an outdoor play area. The play area is a great way for kids to release some energy, allowing families to stay longer and get more value out of their membership. Adding a play area outside would encourage outdoor exercise and help alleviate overcrowding in the indoor area.

KNOWING WORDS COVER ART CONTEST

by PATRICK DAVID MAY



CHOOSING ME

by VALERIA RODRIGUEZ

I slapped him. A slap fueled by my sober mother's rage when untasteful drug association jokes were made, my dad's fury when Pablo Escobar the sociopath who ruined his teens became trendy, and by the cavernous hole Jake left gaping in my heart when the minute he found out I immigrated from Colombia, he said "Come on, just a quick bathroom speedball and then we'll be back."

The affluent town I grew up in has a diversity problem- 80% White, 11% Asian, 4% Black with overall 3% Latino/Hispanic population. A town guilty of busing inner city Boston kids under ruse of educational philanthropy to meet a minority quota. These kids, extras to a small town movie where swastikas were carved in stalls and foundation too dark is used for Bill Cosby costumes. Ironically Wellesley is the 13.1 of the Boston Marathon where once a year an elixir of runners brings cultural richness, worldly love and acceptance through this infamous halfway mark. But as soon as the last place straggler crosses into Needham effects of neighborly love oozes out with them. It was a town where I dreaded the first day roll call when teachers sneered at my last name and proving myself became the unwritten first assignment. It was where Santiago, my little 6'4 sophomore brother with his clover eyes and pearly complexion got into an argument with his American Spanish teacher where she accosted him of lying about being Colombian because her theory was that he didn't seem Hispanic. Would a sombrero and cocaine have made it easier?

I wondered if there was a BuzzFeed quiz for "How Latina are you". Can my cultural identity, my parent's pain, my traditions and morals really be diluted into a 10 bubbled online questionnaire? Google, with its infinite wisdom told me yes and my curiosity compelled me to complete it. Seeking sick justification from a stranger who ended up failing me with an 18% Latina. I chuckled pondering if it was when I ticked no to having a candle lit stove at home or rather the fact I don't refer to cereal as "con fley". Maybe the fact that I don't burst out in hysterics with a mood change or think the abomination of Spanglish is an acceptable version of communication. Do these things make me too "White"?

Immigration around Wellesley was always a rich topic. I would playfully lay a board of minesweeper topics and watch as those who knew me, laboriously dance around the conversation fearing political incorrectness and my possible detonation. With those who didn't know me it was a whole different game. A game that provided me an unfiltered version of them and their thoughts about Hispanics or immigrants. These opinions would usually involve the juxtaposition of Hispanics and immigrants being lazy yet somehow stealing jobs the American jobs. This was completely invalidating my dad's numerous degrees and academic excellence as reasons for his positions. My favorite part was when the conversation was over, after slipping my immigrant nature, they would attempt to atone through "OH but I didn't mean you, you're not like them, you're different!". Like who? How am I different? Why not?

If I was in a vindictive mood my next step would be to bombard them with these questions. Desperate attempts to slash apart their gilded shield of conceit and clobber away at any attempts of conversational redirection, eventually piercing into the heart of a real beast, racism. This wasn't an event I allowed myself to indulge in often because once reality was laid they would feel uncomfortable. Never make privileged people uncomfortable. Once speechless, stunned and disgusted with the truth it was game over for both of us and in their eyes I would now become one of "them". Becoming one of "them" meant I would lose the equipotent status I had with my classmates, a demotion to the credibility of my word and to them become a member of a lower caste.

Senior year I was assistant manager of a local yogurt shop. One day a group of 5 men in their 40's waltzed in and indulged in our product. It was a light interaction with meaningless small talk and typical scripted conversation prompts, the kind seen in a Wendy's

commercial. Pleasant but plastic. After they sat down an Argentinian couple came up and we began to talk in Spanish. The atmosphere began to churn as hushed side comments began complimenting the gentle hum of the yogurt machines. It was my working on the new store banner gave the hushed comments permission to grow into louder audible remarks.

"She spelled color and flavor wrong".

To which another replied "Well what did you expect from someone like her".

In 4th grade English you learn to spell those without a U. I shamelessly pointed out that American English differs to British English in this way. Appalled by my response they began to correct me louder and more aggressively. My ignoring allowed it to develop further until their statement of "fucking illegals" flew across the room and pierced me through the heart, bingo. This vile statement resonating throughout a store floor I considered a secondary home. I gathered up my strength and banned them.

"I'm going to have to ask you to leave and never come back" I bellowed from behind the register.

My younger co worker Julia in the back gleaming with pride but with eyes still darkened out of fear. My fierceness followed them out the door and once they were safely out I slumped over left crying. My whiteness was a temporary privilege, revocable by Spanish. It was a privilege for which Dominican, pecan skinned Julia would never feel the intoxicating, brainwashing warmth. When removed, beer goggles on reality gone and the hangover left reminding you of who you are. Julia's darker features would always betray her and in the eyes of strangers be a condemned "them" and therefore be treated as such.

I figured the White Latina juxtaposition was an American issue. That my inability to fit neatly into the tacky boxes of stereotypes was disorienting to them. During my gap year I engaged in a trip where I backpacked through several countries. I caught glimpses into the minds of foreigners, whose mere demeanor would always alter at the revelation of my origins being purely Colombian. With hungry eyes, interrogations would always pursue in an attempt to figure out how truly exotic of a Latina I was by asking- the age I immigrated, could I dance, where is my accent, do I switch to Spanish when I got angry and if I would roll my r's for them. Then always without my asking they would proceed to give their input of my Latina number. If I failed, I would be quickly informed and chastised for my deficiency. Passing however meant I would now be branded with the word "exotic". Exotic was a double edged sword, a dirty word in my dictionary that punctured my psyche and nonetheless an indolent descriptor for me. It was a word that bore the facade of a compliment, masking the true definition of me now being erotic to them. I would be left feeling like a ripe tropical fruit needing to be consumed, a designer belt for fashion or a rare creature needed for collection. To be branded with exotic was to mutilate my humanity and strip me from my achievements, dreams, and aspirations. I would no longer feel treated like a girl trying to enjoy her life changing trip but rather a woman who needed to be conquered.

This experience with all those Oceania, European and Asian travellers as a whole taught me that being a White Latina was a juxtaposition in the eyes of most of the world. Although we were all foreigners in a distant land, I was the exotic one. It was a different type of "them" but one that was seen as a compliment when in reality left me feeling dirty. It also proved that everyone feels entitled to test and grade you to then inform you of what your culture is, acting like living and breathing BuzzFeed quizzes. They also feel empowered enough to be able to try and reject this part of me. I had 2 puppy loves that conveyed my struggle with boys not understanding what it meant to be White Latina. Both of them trying to expunge my Colombianness either on purpose or subconsciously.

My first love adorned his friend's face with a black eye because he had said I had the lips of a black woman. After his confession, my love tried to comfort me with cheshire smile on his face, as if he done right by me. My apparent knight in shining fucking armor. Was he forgetting what I was? I liked my lips. I loved their fullness and the way they showcased the pigment of my overpriced lipstains. I adored they way they framed my smile and puckered pumphly with my pout. Was I supposed to be offended by these kind words? Matt clearly was and my weak willed 15 year old self began to question my fondness of them. Latina trademarks I should never have even hesitated to love or question. Regretfully for the next few years I began to pursue them into a straight line in attempts to conceal their volume.

My second love was more complicated and wasn't innocent as my first. Ben was far more dangerous with his older guy lure and fierce guitar skills. His sense of humor was dark, twisted, and unpredictable, much like my natural hair. He loved me but hated my story. Wildly and inaccurately opinionated on the "them's" and minorities of the school- ideas I brushed off as strength of character instead of red flags of a feeble mind filled to the brim with ignorance. In desperate attempts to keep the flame going I allowed myself to become Prometheus, a victim of devotion, and for him to be my eagle tearing me apart. He rejected what wasn't liked and as if I was a girlfriend Sim, he began to edit me. My salsa moves became trashy, my Spanish meant only for his cleaning ladies, my music ghetto, my mom too emotionally crazy, and my superstitions trademarks of a lower race. He kept the parts that he liked my dyed hair, proper English, love for classic rock and liberal nature. To be in love then meant to me being willing to change, so I deleted it all. Anger and teenage angst helped me temporarily conform to these whitewash ultimatums for 2 years, a time where I refused to be seen as one of "them", for an us. We lived in a fairy tale world, one I thought was a dreamy Disney creation but in reality was another dingy page of a grisly Brothers Grimm story.

I now understand that real love whether it be yourself or another person is more about embracing and acceptance. I am both Hispanic and Latina today. Unlike a race it is a choice dictated by upbringing and culture. It is a gift that people from certain nationalities have inherited at birth or nurture and can choose to pursue. To be Latina or Hispanic is about the language and culture and although it can be inherited it still has to be earned and learned through time. The Spanish language, traditions, family morals and self acceptance are all choices that are to be incorporated in my daily life.

After years of being in the dark, feeling insufficient and frightened to flash my inner questions, I met a girl on my floor named Katie. Her parents had fled El Salvador during their civil war and became refugees here in the 80's ultimately resulting in her American birth but irrefutable Latino culture. For hours in the safe space of my room we lay our bare thoughts, unfiltered feelings and engage in a transformative conversations. Conversations about our experiences at CU and how both teachers and classmates shape them daily. We talk about the importance about programs such a McNiel, a program for minorities and how we need more of the safe cultural spaces. We complain about my Wellesley experience and compare it to her Aspen, both living there as outliers to the stereotypes. Most importantly to me, we are able to discuss how different our lives would be had we been raised somewhere else with a higher Latino or Hispanic population. After clutching tightly at these thorns of doubt, afraid to let go and fighting these questions, I am able to loosen my grasp in relief. This is connection I had never experienced because in a world of us vs them I was in the middle, stuck in racial limbo. Fortunately for me she's stuck in here as well. Together armed with our culture, intelligence and mannerisms we charge daily into a field of oppression, occasionally shielded by our lighter complexions. All of our wounds in the name of accurate representation for Latina women.

EBOLA VACCINE TRIALS: THE UNETHICALITY OF CURRENT APPROACHES

by HOLLY BORLAND

In 2014, the World Health Organization declared a Public Health Emergency of International Concern with regard to the Ebolavirus outbreak in West Africa. The world was shaken by the news, and various international health committees immediately took action and traveled to affected nations in an effort to prevent further disease transmission and control the outbreak. The World Health Organization (WHO), the US Center for Disease Control (CDC), Doctors Without Borders (MSF), and other large international health agencies were involved in providing treatments and trying to prevent the virus from spreading further. After almost 11,500 deaths and just over two years of working vigorously to control the disease, the WHO finally lifted the Public Health Emergency of International Concern status in March of 2016. Since this time, there has been very little news about the disease, and the virus seems to have mostly left American's minds. However, a very recent outbreak in the Democratic Republic of the Congo (DRC) in August of 2018 is beginning to create international concern once again (2018 Eastern Democratic Republic of the Congo). As of November 2, 2018, there were almost three hundred confirmed Ebola cases in the DRC with 147 confirmed deaths from the disease (Ebola situation reports: Democratic Republic of the Congo). The CDC and Democratic Republic of the Congo's Ministry of Health are collaborating, along with other international partners, to address and respond to this new outbreak (2018 Eastern Democratic Republic of the Congo). International medical establishments were criticized four years ago for their inadequate response to the 2014-2016 Ebola crisis. With criticism from previous crises and the current situation looming over the DRC, such organizations are taking steps to improve their approach to prevention and treatment of the Ebolavirus. According to physicians, clinical researchers, and public health officials, the implementation of a vaccine seems to be one of the most promising approaches.

In 2015, the World Health Organization, Guinea's Ministry of Health, Doctors Without Borders, and the Norwegian Institute of Public Health began collaborating to develop a vaccine and implement clinical trials against the deadly Ebolavirus. A ring-vaccination strategy was used: the vaccine, specifically the rVSV vaccine, was given to high-risk individuals to prevent the spread of the virus before an outbreak could occur. According to Henao-Restrepo et al., a group of researchers involved in the 2015 Ebola ring-vaccination trials, high-risk individuals were those who "within the [previous] 21 days, [had] lived in the same household, were visited by the index case after the onset of symptoms, or were in close physical contact with [an Ebola] patient's body or body fluids, linen, or clothes" (859). These individuals were then randomly assigned to two distinct groups: an immediate group or a delayed group (Henao-Restrepo et al. 858). Individuals in the immediate group were vaccinated immediately after contact with a newly-diagnosed case of Ebola. Individuals in the delayed group received the vaccine twenty-one days after contact. Rid and Miller, other physicians involved in the vaccine trials, explained that the "[twenty-one day] delay reflected Ebola's incubation period and created a control for the intervention clusters receiving immediate vaccination" (432). Trial results suggested that the rVSV vaccine was potentially highly effective, but more trials need to be completed to ensure the efficacy of the Ebola vaccine.

While the development of a vaccine is essential to prevent future Ebola outbreaks, the current clinical trial methods and strategies violate the Belmont Report's ethical guidelines, ultimately making the vaccine trials unethical. The Belmont Report was designed for the protection of human subjects in biomedical research, and it provides researchers with ethical guidelines to protect research participants. When applied to the rVSV Ebola vaccine trials, one can see the researchers took an ethnocentric approach

to fulfilling the Belmont principles. Rather than considering the cultural values of the African population, the researchers took a Westernized approach to perform the trials, making them unethical to implement in the African communities. It is necessary to examine and analyze the current strategy to figure out which aspects are unethical. After analyzing the unethical components of the trials, it will be possible to determine the plausibility of implementing an alternative approach.

The unethical nature of the vaccine implementation strategy is seen in various aspects of the trials. The ring vaccination strategy chose to specifically vaccinate public health workers, which is a clear violation of the principle of justice. The researchers further infringed upon the Belmont standard of justice because they employed the strategy in such a way that it may have intensified social inequalities within the African communities. The Belmont Report's principle of beneficence was also violated because the "control" group was denied potential vaccine benefits during the twenty-one-day delay period. Furthermore, the requirement for a cold chain system to maintain vaccine potency promoted reliance on Western aid which disobeyed the Belmont Report's principle of autonomy. Finally, research shows that members of the African communities in which the trials were being performed had a lack of knowledge about the virus itself, as well as the vaccine. Because of this, the principle of autonomy was at risk of being violated.

Ebolavirus Composition and Vaccine Development

It is useful to understand the specific scientific basis of the Ebolavirus to determine whether a vaccine is in fact a good approach to prevent future outbreaks. Ebolavirus is part of the *Filoviridae* family of viruses, which commonly causes disease in humans. The virus is composed of an RNA core and an outer envelope coated in glycoprotein surface projections. These surface projections allow the pathogen to incorporate itself into the cells of its host. In doing so, the virus can essentially hide within the body of its target and evade the immune system. The presence of such surface projections is a defining characteristic of Ebolavirus and, according to Sridhar, the central role of the surface projections "makes it a key antigenic target for development of Ebola vaccines" (126).

Because the unique glycoprotein projection component of the virus makes it a good candidate for vaccine development, scientists worldwide have devoted time and energy towards developing an effective vaccine. Since 2014, the World Health Organization has been collaborating with other international health agencies, like the CDC, to develop clinical trials in African nations to test the feasibility and effectiveness of administering an Ebolavirus vaccine (CDC 2016). Various different approaches have been taken, and according to Sridhar, "since June 2014, [...] an unprecedented 7 different vaccines (ChAd3, MVA-BNFIlo, Ad26, MVA-EBOZ, rAd5, rVSV and a VLP-vaccine) have been expedited into clinical development" (134). Specifically, researchers have performed phase III clinical trials which show high efficacy and effectiveness for the rVSV vaccine. Essentially, the rVSV vaccine takes advantage of the unique surface projections present on the Ebolavirus. The vaccine virus contains similar surface projections, which can enter host cells instead of the pathogen, thus weakening the effect of Ebolavirus. The WHO, along with other health agencies, are taking advantage of the distinctive surface characteristics of the Ebolavirus to develop a vaccine and implement trials to determine the efficacy of such vaccines. However, despite the promise of the rVSV vaccine, there are still extreme ethical implications with the current ring-vaccination trial methods.

Violation of the Belmont Report's Principle of Justice

The ring-vaccination strategy used to test the rVSV vaccine prioritized vaccination of healthcare personnel over other individuals in contact with the Ebolavirus, violating the principle of justice. The principle of justice, as outlined in the 1979 Belmont Report, asserts that there must be an even distribution of benefits and harms for research efforts to be considered ethical (The National Commission). With the ring-vaccination strategy, healthcare professionals in direct contact with Ebola patients were prioritized in receiving the vaccine (Folayan et al. 2). In the African nations, in which these vaccine trials have been implemented, all healthcare

professionals are at an incredibly high risk for contracting the disease because they are in direct contact with Ebola-infected patients. While many researchers, such as Folayan et al. who studied the ethics of the rVSV trials, argue that healthcare personnel *should* be the first ones to receive the vaccine because they are providing care and benefits to many patients, prioritizing these individuals blatantly violates the principle of justice as it does not provide an *even* distribution of benefits. This exemplifies an ethnocentric approach to satisfying the Belmont Report's standards because the researchers did not consider the fact in the African population, other people may have been at an equally high risk of contracting the virus. There are many other individuals involved in the treatment and care of Ebola patients, aside from strictly healthcare providers. For example, there are individuals who provide care to Ebola patients in non-clinical settings (such as care homes) or those who perform burials for Ebola patients, who also have direct contact with the Ebolavirus. Withholding the vaccine from these individuals and instead solely offering the vaccine to healthcare providers violates the principle of justice because it does not assure a truly even distribution of research benefits to everyone being impacted by the disease. Instead, the trials should be implemented in such a way that ensures equal access to the vaccine for all professionals working in direct contact with Ebola patients.

The ring-vaccination strategy may have exacerbated pre-existing social inequalities within the African communities in which the trials were being performed, which further violates the principle of justice. Oftentimes, the healthcare personnel providing treatment and care to patients in Ebola clinics are from developed nations, like the United States, and are sponsored by powerful international agencies, such as the WHO. On the other hand, the healthcare personnel working in non-clinical settings or managing the corpses during burial services tend to be locals from the African communities in which the trials were being performed. These differences in social and economic standing establishes a social hierarchy between the different types of healthcare personnel within Ebola-affected communities. Although there is little research explicitly looking at the effect of the vaccine on the social structure, it is likely that introducing the Ebola vaccine through a ring-vaccination strategy further intensified this pre-existing social hierarchy. The ring-vaccination strategy offered the vaccine to clinical healthcare providers over non-clinical healthcare providers. Therefore, clinical healthcare personnel could not only enjoy economic benefits from international organizations, but through the vaccine trials, these professionals also had access to the ultimate opportunity: protection from the deadly Ebolavirus. Biomedical ethicists Folayan, Yakubu, Hiare, and Peterson suggest "there are fairer ways to prioritize people at high risk of infection [...] than giving only one group of people privileged access to experimental products based on occupational status" (2). Instead, the ring-vaccination approach reinforced social inequalities and is unethical because it further violates the principle of justice by providing benefits to one group of individuals over another.

Violation of the Belmont Report's Principle of Beneficence and Nonmaleficence

The specific research strategies implemented during the clinical trials for the rVSV vaccine also infringed upon the Belmont Report's principles of beneficence and nonmaleficence. These principles state that research can only be considered ethical if researchers "do no harm" and "maximize possible benefits and minimize possible harms" (The National Commission). Through adopting a study design in which individuals were randomly assigned to be in an immediate or a delayed vaccination group, the ring-vaccination strategy ultimately denied potential vaccine benefits to a particular subset of trial participants. The delayed group was denied the vaccine for twenty-one days: the length of Ebola's incubation period. A disease's incubation period is the amount of time it takes for any significant disease progression to occur within humans, so the participants who did not receive the vaccine until the end of the incubation period were at a considerably high risk for disease progression. Therefore, as Rid and Miller explain, "if the vaccine was effective, participants in [...] the delayed] clusters would have been at increased risk for contracting Ebola" (433). Denying the vaccine to this group of individuals for the duration of the incubation period could ultimately cause significant physical harm and even death due to virus development and progression. Thus, the principle of beneficence was violated during the trials because individuals in the delayed group were not offered

the greatest balance of benefits over harms and were at considerable risk for contracting Ebola.

Many researchers have argued that the ring-vaccination strategy was ethically superior and more favorable than a randomized control trial (RCT) because it did not use a placebo vaccine. Randomized controlled trials using a placebo treatment withhold medical prevention and treatment from control groups *entirely*, meaning research subjects in this subset of the study are not offered medical benefits from the study. Although placebo studies are beneficial in determining whether a particular treatment is effective, withholding the auspicious preventative treatment from the control group is problematic when alternative treatments exist. While the ring-vaccination strategy appeared to be superior because it ultimately *did* allow all subjects to receive the vaccine, the methods still posed an ethical dilemma because some participants did not have access to the treatment until it may have been too late. The CDC states that, “when used early, [even] basic interventions [such as providing fluids and offering oxygen therapy] can significantly improve the chances of survival” (Ebola (Ebola Virus Disease): Treatment). Therefore, the researchers should have provided the delayed group with interventions like these to ensure they were receiving the best available treatment, while still maintaining a control group to test for vaccine efficacy. Therefore, even though it was ethically superior to the implementation of a placebo trial, the ring-vaccination strategy was immoral. Refusing to give the delayed group the vaccine until the end of the incubation period could be detrimental to the participant’s health, violating the principle of beneficence and nonmaleficence.

The Feasibility of Cold Chain System in Middle and Low-Income Nations

Many modern-day vaccines require a cold-chain: a network of healthcare facilities and corporations that collaborate to maintain drug potency and effectiveness. Specifically, cold-chain systems ensure that vaccines remain within a particular temperature range during drug assembly, transportation, and storage (The Vaccine Cold Chain (2)3). Ashvin Ashok and other research analysts have been studying the feasibility of employing cold-chain systems in middle and low-income countries. They have found that in many African nations, such systems are difficult to implement and maintain, resulting in “risks of reduced potency of vaccines, [...] and] poor availability of immunization supplies” (Ashok et al. 2218). Ultimately, reduced vaccine potency can result in low immune responses and can have overall negative health impacts on patients. The risk of a compromised immune response is incredibly problematic and outweighs the immunological benefits of receiving the vaccine. Therefore, cold chains are essential in protecting human lives.

Violation of the Belmont Report’s Principle of Autonomy: Cold Chain System

The deployment strategy for the rVSV vaccine required a cold-chain system for implementation; however, this system promotes dependence on Western infrastructure, which violates the principle of autonomy. Research practices can fulfill the principle of autonomy if the community in which the research is being performed is empowered and can use the results to their advantage to improve public health. However, it can be argued that the rVSV trials did not empower the African communities in which the vaccine was being tested because the trials promoted a reliance on international health agencies for vaccine implementation. As Ashok et al. mentioned, due to geographical challenges and a lack of transportation infrastructure, African nations often find it difficult to implement and maintain cold chains (2218). Therefore, such communities rely on support from organizations, like the WHO, to sustain cold chain systems. Because the African communities in which the rVSV vaccine was tested were unable to maintain such a system without foreign support, they could not continue to deploy and sustain the vaccine independently. Ultimately, this reliance on external institutions removed power from the African communities because they could not use the research results in an autonomous manner. The assumption that the communities could employ and maintain a cold chain system autonomously further exemplifies how the researchers took an ethnocentric approach to fulfilling the Belmont standards. While the implementation of a cold chain system is feasible in developed nations, it is not a simple system to employ and sustain in developing nations. Therefore, the vaccine trials failed to fulfill the Belmont

Report’s principle of autonomy because the communities could not use the results of the study independently and were not fully empowered by the research findings.

Because the cold chain system has been shown to be the most effective way to maintain drug quality, many biomedical professionals argue that it is required for vaccine development and use. However, the researchers implementing the rVSV vaccine in Africa must work to develop a research strategy that can both satisfy the ethical guidelines of the Belmont Report, as well as maintain vaccine quality. The principle of autonomy can be fulfilled if the researchers collaborate with the local communities to establish a cold chain system that is more sustainable. Collaboration between researchers and local community members would allow for the development of a cold chain that the locals could use and sustain, so the vaccine could be used without continual intervention from wealthy international organizations. This would allow the community to be empowered and have true ownership of the research results. Therefore, cooperation between research investigators and local community members in the rVSV vaccine trials is essential to ensure the principle of autonomy is satisfied.

Violation of the Belmont Report’s Principle of Autonomy: Lack of Knowledge about Ebola

The Belmont Report’s principle of autonomy was at risk of being further violated because there is a generalized lack of knowledge about Ebolavirus among residents of the African communities in which the vaccines were being tested. The Belmont Report’s principle of autonomy asserts that research participants must have the capability to make their own decisions with regard to study participation and cooperation. Specifically, the report emphasizes the importance of *informed* decision-making. In late 2017, Kathleen L. Irwin and a group of other researchers working for the World Health Organization conducted a study to determine knowledge about Ebola and attitudes towards a potential Ebola vaccine in a Guinean population of 6699 people (6917). The results found that, in general, the communities had a lack of knowledge about the virus’s transmission, as well as recovery. For example, according to Irwin et al., when asked about virus transmission “less than 5% spontaneously cited burial or funeral activities [...] even though these were common modes of transmission during the epidemic,” and “more than a third of participants who responded reported that Ebola was transmitted by ambient air or mosquito bites” (6917). Additionally, 86.8% of survey respondents believed Ebola was curable, which is incorrect (Irwin et al., 6197). Ultimately, the findings of this large-scale study found that African communities were generally uninformed about the facts and details of the Ebolavirus.

Because the population in which the rVSV vaccine trials were being carried out generally had an overall lack of knowledge about Ebolavirus, obtaining informed consent may have been incredibly challenging. In fact, it is difficult to determine whether research participants were *truly* informed and fully knowledgeable, not only about the virus, but also about the specific details of the vaccine itself and the implementation strategies. Although Irwin et al.’s study did not explicitly investigate the connection between the communities’ knowledge of Ebola and the ethicality of the vaccine trials, their findings raise considerable doubt with regard to the vaccine trials. The conclusions of the study suggest that trial participants did not fully understand the basis of the virus or the trials, so their autonomy was at risk of being violated because they could not give truly informed consent.

Violation of the Belmont Report’s Principle of Autonomy: Undue Influence

The Belmont Report explains that the principle of autonomy also includes the notion that informed consent must be obtained in a manner free of undue influence. The National Commission defines undue influence as an “offer of an excessive, unwarranted, inappropriate or improper reward or other overture in order to obtain compliance” and that “inducements that would ordinarily be acceptable may become undue influences if the subject[s] [are] especially vulnerable” (7). The rVSV vaccine trials were funded by wealthy health organizations and committees, like the WHO and CDC. Although these powerful associations did not offer excessive

rewards for participation in the studies, the research subjects may have felt pressured into participating in the trials in hopes of establishing stronger relationships with such global institutions. Forming strong relationships with these organizations is important for these communities because it means they can then rely on them for help in future crises, such as if there were another disease epidemic.

Paul Appelbaum, who studies research ethics, collaborated with a group of other academics to study the “voluntariness of consent” in research. They found that many factors, other than solely monetary rewards, can establish undue influence. Among these factors, they assert that voluntariness in research is compromised if “patients who otherwise lack access to medical care are invited to participate in studies that promise treatment for their conditions” (Appelbaum et al. 31). The African communities in which the rVSV vaccine trials were executed traditionally have limited access to advanced medical care, so they are more susceptible to disease outbreaks. Therefore, the promise of a potential Ebola treatment by powerful, authoritative institutions, such as the WHO, may have influenced the communities’ willingness to participate in the trials. Such communities may have felt pressured into participating in hopes of entirely eliminating the Ebolavirus. This situation encapsulates the notion that Appelbaum et al. asserts would likely cause undue influence. The presence of undue influence in the rVSV vaccine trials is concerning, as it threatens the research subjects’ right of autonomy.

Necessity for a New Approach

The recent Ebolavirus outbreaks in various regions of Africa are having a devastating impact on individuals, families, communities, and nations. Thousands of people have died from the virus in the past several years, and unfortunately, the disease continues to be relentless. The recent outbreak in the Democratic Republic of the Congo illustrates the dire need for disease prevention, and due to the unique biological characteristics of the virus, it seems as though vaccine development is the best option. However, to determine the effectiveness of particular vaccines, international health agencies have been performing trials in a manner which is unethical and should not be continued. Therefore, a different approach must be taken to determine the efficacy of such vaccines. Authoritative organizations such as the WHO and CDC, who are performing the clinical trials, must reconsider the methods and strategies of vaccine trials to ensure that African individuals and communities benefit from the trials now, as well as in the future, to prevent further disease outbreaks. Unfortunately, there is little research suggesting superior methods of trial implementation. However, if the WHO and other international health organizations are going to continue to perform the trials in the manner they are now, they must begin to take a more culturally sensitive approach to fulfilling the Belmont Report’s ethical principles. These authorities must be more cognizant of the problems with applying the Belmont Report in an ethnocentric manner and work more proactively to protect the research subjects in the African communities. They must also work in collaboration with the local communities to ensure they are empowered by the research and can use all of the results to their advantage to improve the health of their citizens. For example, the WHO could work with the communities and use their financial resources to help develop more advanced transportation infrastructure to allow for the implementation of a cold-chain system that the population can use without continual external support. Collaboration between the researchers and the local communities will allow for a deeper cultural understanding, so the Belmont principles can be fulfilled in a less ethnocentric manner.

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THE WALL BETWEEN LATINOS AND EDUCATION

by LUIS RAMIREZ

PART 1: ANALYSIS

Education is a word in both English and Spanish (Educacion), that refers to something vital to human civilization but something that Latinos haven't been able to easily obtain. More specifically, Latinos here in the U.S have lagged behind other ethnicities in the pursuit of a college education. In a study released by Georgetown University (Carnevale, Anthony P, and Megan L. Fasules) the Latino community here in the U.S was found to have the lowest percentage of college experience. As opposed to their White(74%) and Black(66%) counterparts, Latinos had a low 45% . A further analysis of this issue reveals that Latinos face 3 primary challenges when pursuing a post secondary education: 1) prejudice and bias, 2) high school graduation rates, and 3) acculturation. In this paper, I will analyze how these three things directly impact Latino-Americans wish to go to college. I will also share my personal experience overcoming these challenges and attempt to find solution based on them.

As the fastest growing minority group in the U.S, Latino students--both immigrant and native--now make up 20% of the current elementary and high school population (Catalano, Theresa). With such a large presence in the education system, what exactly is causing Latinos to fall behind their peers in terms of attending college? One possible explanation is the current anti-immigrant sentiment here in the US. In recent months immigration has been a hot topic on the news, causing what feels like a 50/50 split of the country. With the latest presidential election this sentiment has only grown. Donald J Trump has vividly expressed his feelings towards Latino immigrants (specifically Mexican ones) through various actions and tweets. He has been quoted saying things such as "...I want nothing to do with Mexico other than to build an impenetrable WALL..." (@realDonaldTrump, 5 Mar 2015) and "When will the U.S stop sending \$'s to our enemies, i.e Mexico..." (@realDonaldTrump, 10 Jul 2014). Specifically looking at the education of immigrants, Trump has made his views clear with his recent decision to end the Deferred Action for Childhood Arrivals (DACA) program. The program enabled immigrant youth who came to the U.S at a young age to request a 2-year deferral of deportation that could be continuously renewed. With the end of the program so ends the dream of over 800,000 recipients, many of whom are pursuing a college education. Trump's prejudice is further backed by a large part of the country in examples such as Arizona's HB 2281 Law, which prohibits school districts from teaching ethnic studies courses, or Florida's Policy which used to allow colleges to treat American-born citizens as non-residents if they can not prove that their parents are in the country legally (Catalano, Theresa). For Latino Americans, all of this feels like a loud message saying "we don't want you here". Sadly, it is being heard and heavily impacting the Latino community. In a study lead by Jason G. Irzaryy and John Raible, Latino academic achievement was heavily linked with their development of relationships with teachers, counselors, and other academic staff (Irizarry, Jason G, and John Raible). Because a large portion of the population is now openly anti-immigrant, it is not hard to believe that some teachers and staff will stray away from developing these relationships with their Latino students. Without these relationships, the study reveals, Latinos are put into a disadvantageous position to pursue college compared to their non-Latino peers. On top of this, one can only imagine the mental fatigue caused by constantly hearing that you don't belong here. For Latinos attempting to get a college education, statements like this can make it feel like they're swimming against the current. Thus prejudice and bias can impede the education of the Latino community.

A post-secondary education requires acceptance into a college or university, which requires high school graduation, which many Latino-americans are not achieving. In the past 10 years, Latino-Americans have made a collective push to increase their high school graduation rate. From sitting at the bottom with a 61% high school completion rate in 1992 to now an 83%, Latinos made a massive 22% leap (Carnevale, Anthony P, and Megan L. Fasules). With such an achievement it's very disheartening to hear that they still lag behind by 10% to their white counterparts. Since these same Latinos and Whites share a classroom, a school, and an education, wouldn't it make sense that their graduation rates should be on par with one another? So what is happening? One explanation is what we label the slow conversion of the economy. In the 1940's only 4.6% of the U.S population had completed a 4 year degree (Wilson, Reid). This implies that the large majority (95.4%) of the population worked in sectors that did NOT require a college degree. So what does this mean for Latinos? When immigrating into the U.S, Latinos came in with the belief that you don't need to go to school to have a fruitful life here in the U.S, and to an extent they were right. In the late 1970s only two thirds of the entire US population obtained a high school diploma (Snyder, Thomas D, 30). These low graduation rates had very little financial effect on people with no diploma. In fact, back then workers with a high school diploma or less accounted for 64% of people with above median salary earnings in the country (Carnevale, Anthony P, and Megan L. Fasules). Today only 21% of people with a high school diploma or less are sitting above today's median earnings. This massive shift over the past 50 years occurred at the same time that immigration began to dramatically increase in the U.S. Thus, when coming into the U.S, immigrants carried the belief that post-secondary education was optional. In the Latino community many people believed this, as evidenced by the low graduation rates. This sentiment-- that you don't need college to be successful-- is something that our parents told us. Those who still believe this are undergoing a trial by fire as they are slowly realizing that times have changed and having a college degree is becoming a requirement to succeed in this country.

The 3rd and biggest challenge Latinos face is a mental one. When coming to the U.S, or growing up as part of any minority group, adolescents face the constant challenge to accommodate their beliefs, cultures and opinions to fit more in line with that of Americans. This process is known as acculturation, and it is something Latinos fight on a daily basis. Today, approximately 38% of the Latino population here in the U.S speaks exclusively Spanish. Anybody can tell you that English is an unspoken requirement if you wish to go to an American college. Thus, it's sad to say but intrinsically anybody in the Spanish-only group immediately faces a disadvantage if they wish to go to college. To further support this, a recent (2009) survey by the Pew Hispanic Center, (Anderson, Doug) revealed "Limited English" as the #2 reason why Latinos in the U.S don't continue their education. Now consider this, even if a Latino knows some english there are studies that suggest that English proficiency is "highest among those with a bachelor's degree" (Krogstad, Jens Manuel, and Ana Gonzalez-Barrera.) It is the one internal variable that Latinos CAN control, but nonetheless a constant challenge they face due to the difficulty of learning a new language.

Even outside of the language barrier, acculturation has been shown to take its toll in the mental health of Latino adolescents. A 2007 study (Koneru et al) that outlined the correlation between acculturation and symptoms such as stress, depression and psychiatric disorders found that minority groups faced negative side effects as a direct cause of acculturation. Focusing only on Latino groups, the study reports that higher acculturation was associated with things such as depression symptoms, higher deviant behavior, and a "less optimistic outlook". Pair this with already daunting Latino-American struggles, and it's easy to see that before any Latino can even apply to college, they have to deal with financial inadequacy, social prejudice, and mental health problems.

PART 2: MY PERSPECTIVE

Having been born in Mexico, immigrating here to U.S at a young age and currently pursuing a bachelor's degree, I found myself facing many of these challenges. Starting with the anti-immigration prejudice, I find trouble even turning on the news out of worry to see more and more stories about the "wall" or "how Mexicans are rapist". It is even a tougher pill to swallow that the current P.O.T.U.S holds such a massive following, even after he has openly expressed his hate towards so many minority groups. To me and my Latino peers this tells us that there are people amongst us who despise us being here and want us to leave, or even worse things. Coming into college many Latinos fear being exposed to people who openly support Trump's' anti-immigration sentiment. Quite honestly it's scary to

be hated so openly, and because of this many Latinos believe that many Americans at any given university are racist. Due to this, many are drawn away simply by holding notions similar to this at heart. The only thing I believe will change the mindset of those who oppose immigration is the exposure to other cultures, beliefs, and intentions. Many anti-immigrant supporters fear that Latinos are here with bad intentions. With enough exposure to Latinos, I believe these sentiments will slowly go away, and with it so will the prejudice and bias.

Moving onto high school dropout rates. Once here in the U.S, I attended a very diverse high school with an approximate 85% minority student population (U.S News). While there, a lot of my peers took up and prioritized jobs outside of school. This is typical for your average high schooler, what was not normal was the view shared amongst some of my peers that they could simply just drop out and start a career working in a given field. From experience, I can see where this comes from. Just like many of my peers, neither of my parents finished high school. Out of need to support their family, my dad only finished middle school and my mother only got through elementary. This forced them into labor intensive careers that although they supported the family, they were not a desired way of living. For many of my peers, it became somewhat of a habit to do the same and carry along with the outdated notion that “you don’t need school to have a fruitful life”. This happened so much over course of my four years there to the point where only about 56%(U.S News) of my senior class was able to walk the stage and receive their high school diploma. Many fell trap to the complacency of making decent money, so much so the they decided to drop out and stop pursuing education. It is sad that this is still a problem, specially after the massive increase in graduation rate amongst Latinos. The only solution I see here is to... well...quite frankly there is no easy solution that is not easier said than done. I believe this is an issue that has been tackled from multiple angles, but with little success. Regardless of that, the high school graduation rates steadily increasing amongst Latinos. If the pattern continues, it is my hope that this issue will cease to be within the coming decade or two.

Finally, we come to acculturation. My biggest perspective on this is the constant stress that comes from it. Whether it be in the form of financial need, family centric decisions, or the fear to pretend to be someone i’m not. Before applying to college, I was tasked with making sure I could first of all afford it, but more importantly, making sure my family could afford it. Back in Mexico it is very common for one’s kids to support their parents financially straight out of high school. Deciding whether to go to college was a battle amongst myself. My mentality upon graduating high school was that my parents had given me so much and now it was now my turn to give back. In a leap of faith I decided to lean on them one last time and attend CU, but that was not the end of my battle with acculturation. Being a first-generation college student, my parents weren’t able to guide me through the process of how to succeed in college. To me, that put a lot of weight on my shoulders, as I now had to make sure my plans and intentions were clear, my grades remained acceptable, and making sure I was able to help myself through this transition process. I felt almost alone as I didn’t not see the large majority of my white peers struggle with most of these things. It goes without saying that not everyone is at an equal playing field coming into college, but it’s crazy to me how disadvantaged minority groups are.

With all this in mind, it is clear that the pursuit for a post secondary education is challenged by prejudice, high school dropout rates, and acculturation. Prejudice is at an all time high, as evidenced by the massive support behind Trump. This is something Latinos face on the daily and something that sways people from even visiting a university. Similarly the mentality of financial stability without a high school degree, creates a deadly illusion that stops Latinos from even being to apply into college. Lastly, the constant fight with acculturation disadvantages Latinos wishing to go to college. Simply by living in the U.S Latinos face a series of mental and physical barriers that torment them everyday. With these three problems ahead of the Latino community, there is no doubt in my mind that Latinos wishing to attend college, are playing in an uneven field. Education is a virtue that is slowly becoming a requirement. With minorities expected to become the majority (CNN), it is imperative that we act now on these challenges that they face today.

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CHASING CORAL ... AND FINDING RHETORIC

by BRYAN MARTINO

INTRODUCTION

If reefs are the underwater equivalent of trees, how could we live without them? *Chasing Coral*, directed by Jeff Orloski, addresses the issue of coral bleaching by taking a team of marine scientists and videographers to document cases of reef bleaching throughout the globe. The film emphasizes the impact of climate change on coral death, and how its rapid progression demands that our sustainability efforts expand as soon as possible. Where the interest of this discussion lies, however, is how the message reaches its audience. How effectively does *Chasing Coral* synthesize cinematography and biological knowledge in a way which leaves lasting impact on the audience?

POPULARIZATION: FORENSIC TO EPIDEICTIC

As public interest in science has grown, it has become more important to understand the rhetorical moves by which peer-reviewed science enters the public arena. Therefore, the way in which *Chasing Coral* presents its biological knowledge is paramount in serving the message of this film. Rather than stuffing the audience with dense scientific discussion of subjects like greenhouse sinks, symbiosis, and salt-water biochemistry, this film reserves itself to provide information on a need-to-know basis. Dr. Ruth Gates, a coral reef biologist, discusses the anatomy of coral polyps and symbiosis between polyps and algae earlier in the film; she provides a context so that the audience can understand for themselves how bleaching affects corals. In this sense, her small insertion of background information adds weight to the issue by involving viewers in the dilemma faced by scientists. Though brief, her explanation bridges the gap between forensic (discourse about what has happened) and epideictic (discourse that assigns praise or blame). Comparisons and visuals are used to eliminate the need for highly specialized dialect— *hexacorallia* and *octocorallia* become “tiny animals”, endosymbiotic zooxanthellae become “food factories”, while skeletal calcification is portrayed as a type of coral growth. If this information weren’t translated from the scientific realm into more



“Petals of a flower”

colloquial language, it would go straight over the viewer’s head. This film’s approach to popularization precisely follows Jeanne Fahnestock’s argument in “Accommodating Science: The Rhetorical Life of Scientific Facts”, where she discusses how the creative mind enters the realm of science. Along these lines, the film follows a pattern of praise and blame, where some scientific knowledge is framed as positive, and other is framed as negative. The polyp anatomy incident is clearly an instance of praise; Dr. Gates expresses her personal

“I get completely overwhelmed sometimes, underwater...I have the utmost respect for corals, ‘cause I think they’ve got us all fooled.”
-Dr. Ruth Gates

In a seemingly objective biological discussion, glimpses of her admiration shine through. Viewers can feel the sincerity in her tone by the way in which she verbally emphasizes words through the pacing and pitch of her voice. Enchanting background music and time-lapse videos of polyp motility match her curiosity to deliver a compelling subjective message layered underneath the factual evidence. The crucial impact of presenting information in such a way adds an additional level of meaning beyond biology because it serves the film’s purpose, that is, to persuade the audience that coral is worth preserving. This additional level of meaning could not be achieved by formal language on a piece of paper — paper cannot deliver passion and liveliness in the same way an expert can emulate it through personal interview. The difference in statement types, between paper and eyewitness, is highly rhetorical, elevating information from factual, to beautiful, to sublime.

CORAL BLEACHING

Coral bleaching, another major biological premise of the film, is explored with another set of epideictic techniques. When Richard Vevers, the team’s underwater photographer, introduces the bleaching phenomenon, contrasting before and after images of Airport Reef are used as a focus point. Contextually, this type of lead-in functions as a path to the larger issue, while allowing the film to present commentary through personal experience. Vevers’ comment about how he hadn’t realized the severity of bleaching until firsthand witness captures the naïve perspective of the audience. The film brilliantly entertains the notion, “seeing is believing”, whereas the act of visual comparison clearly outlines the problem. For those not well-informed on the issue, a picture is worth a thousand words, and the visuals lend themselves well to the biology of the matter. Similar to her earlier comments on polyp anatomy, Dr. Gates is subsequently able to deliver a colloquialized discussion about how coral bleaches because she draws from a variety of analogies to the human body. When the photosynthetic zooxanthellae denatures due to higher water temperature, the coral expels it from its tissues, just as a human’s immune system would respond in light of a bacterial infection. Vevers’ diction, including word choices like “flesh”, “tissue”, and “skeleton” are words suspiciously akin to the human body. And as if to eliminate skepticism about the mortality of the ocean’s temperature change, Vevers makes a drastic comparison between ocean temperature and body temperature. By focusing on how coral is similar to the human body, *Chasing Coral* is able to take two seemingly different types of living organisms and make them feel as one. It is a brilliant attempt to convince the audience that human health is inevitably tied to coral health, regardless of how little we seem to have in common with such alien creatures.



Bleached Coral: Before and After

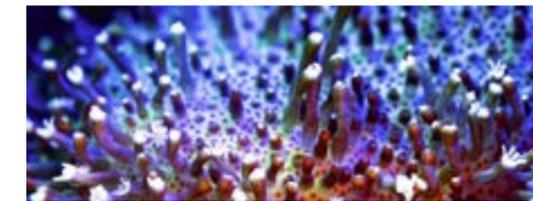
USE OF NUMBERS

Usage of quantitative data, though not necessarily limited to a particular biological context in the film, is another way in which the biological information is popularized. A broken line graph, for instance, is featured when a climatologist describes cyclical ocean temperatures, from which the audience can interpret that the average temperature has been rising outside of a hospitable range since 1980.

Generally, quantification is very beneficial for a scientific film because science is quantified by nature. Specifically for the purpose of *Chasing Coral*, it provides a hint of traditional, forensic science in an otherwise extensively popularized piece of work. In other words, the arguments of this film are not speculative, but grounded in cold, hard evidence that has been well-researched by the filmmakers. With such assurance, the film is easier for people to buy into. It also allows the audience to engage in the content of the documentary by acting as scientists themselves, drawing interpretations about the significance of what the numbers represent. Statistical call-outs are also captioned on the screen to draw attention to their significance, like when Vevers states: “29% of the corals on the Great Barrier Reef died in 2016.” By highlighting such deliberate information on screen, viewers are much more likely to understand and wonder just how devastating this statistical measure is. With such a powerful message, the seemingly objective facts become much more consequential than they would feel if they were written in a purely forensic report, lost in a sea of numbers and incomprehensible words.

Practical Theatrics

Perhaps *Chasing Coral*’s greatest accomplishment as a documentary film, is the way in which it is able to elicit emotions from its audience. This production is hardly a research report; its main goal is to inspire our next generation to embrace sustainable practice and preserve what we take for granted. As such, several cinematic factors, from time-lapse, to characterization, music, plot, and others, work together to produce a long-lasting impact while educating those who view the film.



Close-up videos and color-enhanced images, along with computer-simulated models, and vintage footage, are the cornerstone of this film’s cinematic delivery. On a very basic level, the flashiness of the cinematography is necessary to keep the audiences senses entertained and to demonstrate the filmmakers’ abilities. Another interesting reason for including such abundant visuals rather than continuous footage is due to the limitations of underwater cinematography. Underwater filmmaking, as described by the director and camera technicians of the team, is tedious. Cameras and equipment must be concealed and re-engineered to withstand moisture, salinity, weather, and pressure at various points through the filming process. From a practical standpoint, using different types of visual aids was essential for budgeting and time-related reasons. But clearly, the effect of such well-placed visualizations is much more than a matter of practicality.

One of the most theatrical scenes in the movie occurs in the “Manhattan” of the sea: The Great Barrier Reef. Dr. Gates, as well as a few other marine biologists, spend time describing the “grunts and groans” that occur each day on the average reef. Every organism plays a unique role, whether it be defending coral, growing algae, or something else. Organisms have different jobs, and fish traffic is lively around dusk and dawn. To demonstrate this scene, there are short video clips of shrimps, corals, fish, mollusks, and others fulfilling their niches of everyday life. Delicate music reaches a soothing level while high resolution, slow-motion clips of shrimp are an aesthetic appeal. A sense of movement is created by



Mantis Shrimp Defends Tube Coral

the different focuses and points of view and by shifting frames. At one point, an audio clip of a parrotfish grinding hard coral is played

for the audience to hear. These effects allow the audience to feel as if they floating through the reef themselves. The audience has an opportunity to achieve a near-perfect taste of what it feels like to see marine life flourishing. Giving people a chance to observe is powerful tool, in which case they can see and truly believe what the screen unfolds for them.

IMPORTANCE OF CHARACTERIZATION

Characterization is key because it is used to associate the audience, connecting them to the team and driving the plot forward. Vevers is the very first team member introduced in the film, and he introduces himself as an outsider, an “ad-man” from the corporate world looking for a career change. His casual composure, curiosity, and naivety are representative of the ideal member of the general public, blissfully unaware of the coral crisis, yet ready for change and willing to learn. From the first few minutes of the film, the audience is able to establish a level of informality and comfort that the professionals of the film cannot provide. His reaction, for example, when swimming through the bleached Airport Reef, is riddled with confusion and questioning, which shows how little knowledge he has of the issue. How he sees, feels, and responds is meant to be a wake-up call to those of us that take our ocean for granted.

The significance of character-audience relationship plays an interesting dynamic at the National Coral Symposium, where the audience members within the film view the team’s bleaching time lapses taken around the South Pacific Ocean. At one point, speaking ceases completely while several time lapse videos show the destruction of countless coral ledges around the world. Close-ups of audience members who are horrified, crying, and nodding in grief are shown with dying coral to produce the most somber moment in the entire film. It is essentially a “movie within a movie”, a microcosm of the global attitude: uninformed, sad, and helpless. It also represents the gap between spectators, like those on the floating restaurant, and those such as the documenting team, who challenge the issue. Thus, the audience is left with the decision to break the barrier between spectator and hero. It is the film’s ultimate call to action.

Death is a major motif used to portray sympathy and urgency. From Airport Reef, to Lizard Island, New Caledonia, and other reefs, the motif of the coral’s death cycle is a seemingly morbid transformation. When the algae is expelled from a coral’s tissues, the coral’s skeleton becomes completely exposed, and once it starves to death, microorganisms begin to grow, changing the appearance from a stark white to a soggy, brown appearance. Considering the parallel drawn between human health and coral health, our reactions would not have been as mild if the film replaced dying coral with dying humans. Are they to be treated as equally appalling? It is a question which humanizes these animals, and warrants caution for human longevity. To watch animals wither away before our eyes is distressing, but to watch them become extinct is an even deeper feeling of tragedy.

“And to sit there for a month, and every single day, watch something new around you die that you saw yesterday...it’s just difficult.” -Zack Rago

Interestingly, the death cycle of corals observed at New Caledonia was a much more sublime display. As corals were starving, they secreted a type of chemical sunscreen which changed their appearance from white to shades of neon colors, from blue, to purple to yellow. It was referred to as the “incredibly beautiful phase of death” by Vevers, who took astounding images of these corals on the brink of fate. The spectacular colors exuded by these dying corals is something never seen before, as if they were shouting their final cry for help. When a human is in their final moments of life, large quantities of neurochemicals like dopamine flood the brain. Maybe the intense shift in color is a coral’s version of near-end euphoria. It challenges how we perceive death, that it is something beyond our comprehension. Not all death is ugly, and the idea that something so quiet can speak so loudly is far beyond the grasp of our imagination.



“Ceremonial Death”

CONCLUSION

In many ways, it is difficult, and almost unnecessary, to distinguish the difference between this film’s cinematography and the way it popularizes biological knowledge— the two are so intertwined in the film that it difficult to break them down in some regards. *Chasing Coral* blurs the line between science and art that is equally, if not more educating for those willing to embrace the issue. As an aspiring marine biologist, I was intrigued at how the contents of this film ditched conventional filmmaking in a sense that it ditched fact for art. Considering that coral bleaching is today’s critical issue, and that the Great Barrier Reef is a mere thirty five years from complete eradication, *Chasing Coral* is set up as a sustainability call-out to the world amidst the rising demand for climate change mitigation. Though sustainable practices have grown in the past decade, the majority of people worldwide still overlook the consequences below the waves and focus on terrestrial issues. By engaging this film, one is able to *feel* the same passion this team has for protecting coral ecosystems. To move forward productively, it is up to us to recognize the breathtaking beauty of our underwater kingdom, and accept that we are part of something more supreme than our own terrestrial existence.

“If we can’t save this ecosystem...are we gonna have the courage to save the next ecosystem down the line?” -Dr. Ove Hoegh-Guldberg

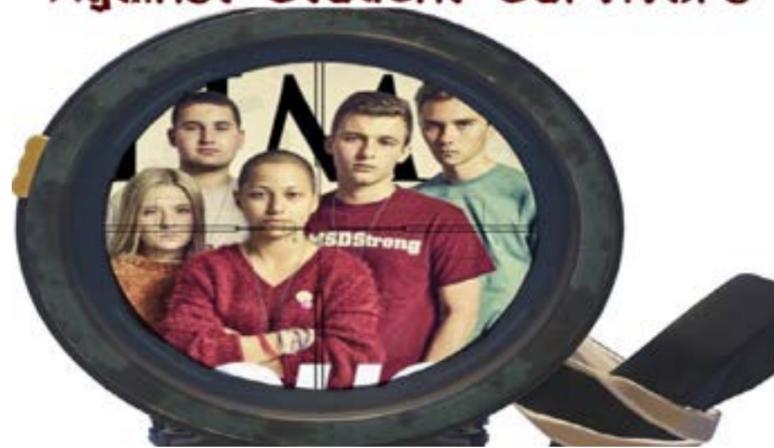
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- *Images courtesy of Jeff Orloski*

EXPOSING THE CONSPIRACIES AGAINST STUDENT SURVIVORS

by DIEU HANG HOANG

TARGET PRACTICE: Exposing the Conspiracies Against Student Survivors



Mass communication displayed its deleterious effects as it injects the minds of thousands of Americans with an excessive dosage of hogwash and falsehood concerning victims of the 2018 shooting in Parkland, Florida. Following the tragedy, students at Marjory Stoneman Douglas Highschool actively advocated for gun control legislation through organized rallies, talks with government officials and lobbyists, and discussing the issues on social media, news broadcasting, and various other communication platforms; their message extended across the nation as other students, teachers, and parents engaged in the campaign and discussion. Despite gallant efforts of leading the Never Again movement and the March for Our Lives, the outspoken victims of the shooting endured the role as targets of conspiracies and defamation. Among the criticisms and conspiracies included public figures questioning the legitimacy of the student organized marches, the internet circulating with misleading or inaccurate information, and skeptics attacking Stoneman Douglas student David Hogg for being a fraud. However, fallacies loaded the doubtful claims vented by politicians, Stoneman Douglas students provided evidence against the internet conspiracies disproved the fabricated news, and survivors reminded conspirators of the reality: an after-math 17 murdered students and teachers.



Underestimation

Many public figures and politicians voiced their suspicions; they insinuated that liberal adults and the left-winged media incited the protests. A former U.S. representative for Georgia, Jack Kingston, emerged as one of the skeptics, for he asked, “Do we really think 17-year-olds on their own are going to plan a nation-wide rally” (Chasmar, 2018). Kingston’s implications committed the fallacy of hasty generalization by assuming that students “do not have enough logistical ability to plan a nationwide rally without it being hijacked by groups that already had pre-existing anti-gun agendas” (Chasmar, 2018). He failed to provide evidence to support his generalization of 17-year-olds and suggestion that left-winged groups controlled the protest; therefore, his claims deemed invalid for adhering to a fallacy.



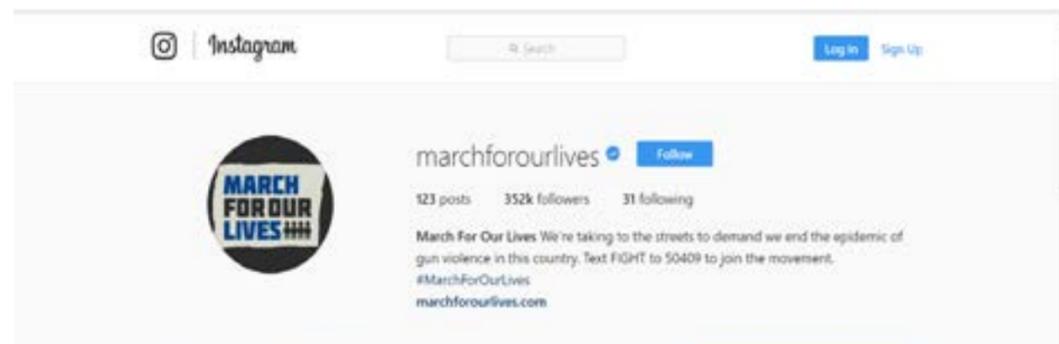
Paul McCartney joined millions of other marchers in the March for Our Lives protest, an event commenced by Stoneman Douglas students and primarily organized by high school students nationwide as a renewed movement for gun-control.

Although Kingston provided no evidence, per Toulmin, he asserted the claim that students stay incapable of planning mass rallies without heavy influence by pre-existing anti-gun organization. He added his reasons for the claim to be students’ lack of logistical develop-

ment and George Soros ability to take charge to form instant protests. Kingston flubbed to recognize the history of protests—high school students and teachers have formed and engaged for various causes of protests dating back to the 1950s (Logan, 2018). These high school protests included the notable Little Rock Nine backlash against the NAACP decision to enroll African Americans in primarily white schools (Logan, 2018) and the lesser known rallies of Jeffco students’ and teachers’ walkouts protesting a new APUSH curriculum (Paul, 2016). Furthermore, Kingston neglected the Parkland’s students use of social media, downplaying the importance and effectiveness of mass communications’ ability to transfer information about the marches. The students created Twitter, Instagram, and Facebook pages that were followed by over 300,000 users nationwide, indicating a reason how the marches gathered so many protestors. Instead, Kingston intensifies, a feature of Rank’s model, the idea of left-winged groups hijacking the marches through his repetition of this idea while downplaying the possibility of social media’s, television’s, and radio’s impact by spreading information about the rallies to gain support.



The March for Our Lives movement’s social media pages engaged with hundreds of thousands social media users.



Alongside Kingston resides a more extreme skeptic, Ted Nugent, an American musician and supporter of the NRA. Nugent doubted the trustworthiness of the students claiming media has “prodded and encouraged and provided these kids lies” (Segarra, 2018). His implication that the students lied because the media fed students lies and the students “parrot the lies” (Grunburger, 2018) execute circular reasoning, for his reason rests equivalent to his conclusion. Nugent continued his rhetoric by pronouncing, “I’m afraid to say this and it hurts me to say this, but the evidence is irrefutable, they have no soul” (Segarra, 2018). Without providing actual data, logistics, or statistics, Nugent violated the ad hominem fallacy by personally insulting the students by calling them soulless to support his argument against the students’ activism.

Russian Robots and Rumors

Succeeding the Parkland shooting, a mob of automated controlled robots and human controlled accounts exploited the tragedy by spamming conspiracy theories about the survivors and intensifying Second Amendment messages (Kruzel, 2018), mirroring the Rank’s model to push an agenda. The German Marshall Fund tracked the conspiracies to Russian-linked social media accounts that trended the terms “false flag” and “deep state” to promote the conspiracies of the shooting being a hoax orchestrated by factions trying

to take down Donald Trump or the Second Amendment (Kruzel, 2018). These theories committed the dog-whistle politics fallacy by using brief phrases to reduce the message to the public, yet they consisted of a more specific conclusion about the shooting. The theories proved inconclusive because there existed no real or credible evidence to support them; instead, conspirators used Rank’s model by tying assumptions and unrelated information together to intensify the ideas of a hoax and downplay the casualties of the shooting. In some cases, the bots and trolls spread photoshopped images and manipulated videos to insinuate arguments and further divide the opposing sides.



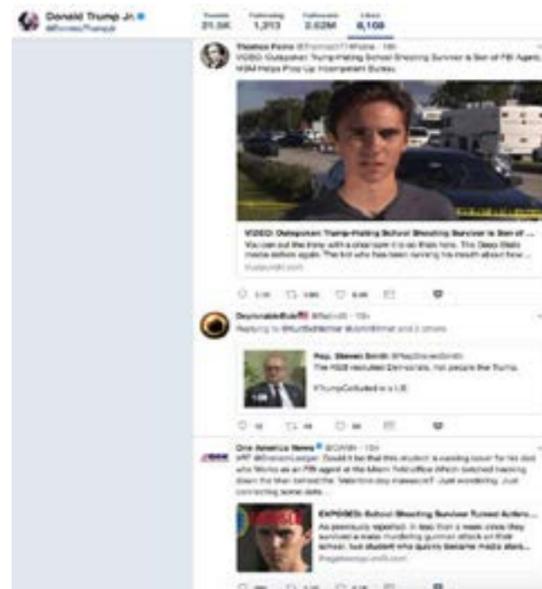
The original image depicted on the left shows Emma Gonzales (a Stoneman Douglas Student), tearing a target practice sheet. The right side promotes a different message with a photoshopped version of Emma tearing the Constitution.

Unfortunately, the fake information convinced many Americans to support and promote these conspiracies. The most high-profiled conspiracy to emerge from the Parkland shooting targets some students by implementing the idea that they do not attend Marjory Stoneman Douglas High School, but rather actors paid by the media or left-winged groups. Sean Kelly, a former Florida politician’s aide gained media coverage when he sent an email claiming that some students “are not students here but actors that travel to various crisis when they happen” (Pestano, 2018). “Crisis actors” emerged as a term used to attack the students and fulfills the dog-whistle politics fallacy by applying the term to describe the students, labeling students who voice against automatic rifles as frauds. However, after receiving news of this conspiracy, students from Stoneman Douglas High School posted yearbook pictures and school activity photos of the main targets of the conspiracy, Emma Gonzalez and David Hogg, to warrant their enrollment in the school. Per Toulmin, the students’ engaged in the rebuttal of the allegations by using photo, video, and documented evidence. The superintendent of the school also voiced his confirmation that the students attend the school. However, even after releasing evidence to contradict the claims, many still denied the fact that the students survived the shooting.

The Bullseye

Among the students from Stoneman Douglas High School, David Hogg prevailed as the most targeted of the bunch due to having the most conspiracies and allegations concerning him. Donald Trump Jr. received backlash after liking a tweet promoting a conspiracy theory about Hogg. The liked-post claimed that David Hogg spoke out against guns to cover for the FBI agency for

their failure to respond properly during the shooting (Graves, 2018). These theories remained unfounded and consisted of the guilt by association fallacy. Because his father formerly worked for the FBI and Hogg identified within the same family, accusers used his association with his father to evoke a negative ethos of Hogg’s standpoint.



The image displays a screenshot of Donald Trump Jr.’s Twitter profile with his liked post of conspiracy theories regarding David Hogg. Russian-linked accounts originally perpetrated these conspiracies, and right-winged accounts shared and spread the notion.

Another conspiracy trended when a YouTube video apparently exposing David Hogg as a crisis actor surfaced the internet. The video displayed an image of David Hogg being interviewed for a CBS news report in Los Angeles, California in 2017 (Graves, 2018). Per Toulmin, theorists used the photo as evidence to accuse Hogg of traveling to different locations to act as a crisis survivor (Graves, 2018). Upon further review, the original interview with CBS exhibited no relations to guns or any crisis, for that matter. The original story revealed Hogg to be answering questions as a witness for a sour interaction between his friend and the life-guard. Therefore, the original video affirmed the claim that Hogg’s travels to different crisis as invalid. Internet users framed the video as proof that Hogg pretended to be a student in Florida when he attended Redondo Shores High School in California. However, to refute the claim, people dug through the internet to find a post in 2017 of Hogg’s talking about his vacation in Los Angeles (Graves, 2018), explaining why he appeared on the news in that location. Students from Stoneman Douglas posted yearbook videos including pictures of Hogg to debunk the accusations.



This Facebook post depicts an example of a conspiracy believer implying an invalid conclusion due to the absence of fact-checking.

Another rumor surfaced concerning David Hogg—this time claiming that he exists as a 27-year old man with a criminal record related to drugs (Larsen, 2018). The verdict showed false for this claim. Based on the Toulmin model, David Hogg’s name exists as the only supporting distinction of the claim. However, evidence from Arrests.org warrants that the question raised about the legitimacy of David Hogg remains a high school student reveal false (Larsen, 2018). A prison in Anderson County, South Carolina currently contains the 27-year old drug felon man with the same name as Hogg (Larsen, 2018). Therefore, David Hogg ceased to be a fraud and proved to be who he claimed.

Amidst the Distinct Voices

David Hogg spoke out about the conspiracies, reminding that despite the controversies, the gun-reform activism continued. Public figures and conspiracists specifically targeted the students for their lack of study on guns, their legitimacy as survivors of the shooting, and their ability to organize protests. These theories led skeptics to neglect the millions of Americans that marched alongside these students; among them, veterans, hunters, educators, parents, and seniors voiced their protest gun violence, while only attacking survivors of the shooting. Through misleading pictures and shortened phrases, conspiracists deceive Americans into thinking that the media controlled and paid the students into speaking out about gun reform. The ideas consisted of logistical flaws, failed to complete the Toulmin model of Argument, and displayed strong use of the Rank model to detract from reality. Through these conspiracies, we can learn to fact-check secondary sources and review photos and videos for their legitimacy before accusing another person of fraud.

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MIND OF FIRE

by CLAIRE TETRO

What it took to defuse the blaze within my own brain and how the stigmatization of mental illness continues to spark the fire

I'm sitting on the bathroom floor. The bright fluorescent lights shine down on me, reflecting off my tears. A group of girls surround me, I can't see them and I can't remember who they are. They attempt to calm me through their soothing voices and positive words, "It's OK Claire, just breathe. Just keep breathing." Those three words are the words that I hear everytime it happens. A panic attack. This is the fifth one of the week and it's Wednesday. Freshman girls walk into the bathroom staring until they are shut out by the door slamming into them as my friends attempt to keep this private. People shouldn't see me like this, it's embarrassing. My whole body is shaking as I wipe my tears. Snot stains my sleeves. I collapse further into the floor, hugging myself into a ball, attempting to provide myself comfort. The floor is cold, but my brain is on fire. This is mental illness. This is me.

My story isn't one that is plastered across billboards or streamed throughout the media, yet it is one that is unfolding behind hundreds of closed doors. Instead it is a story that is told in the background. A story of a girl fighting an internal battle. A story of a mind on fire.

It began when I was in 7th grade. I thought it was nothing more than sadness, a pubescent teen struggling with boy crushes and girl drama. At times it felt like the end of the world, but I didn't think too much of it. I thought it was normal. After all, it was something that was never talked about. I remember the first time I admitted to my friends what had been going on in my mind. I explained to them it felt like my mind was on fire. Not a slow burn, but a blaze. One that would destroy anything in its wake, one that was destroying any sense of hope left in my mind.

The burning came in waves and it wasn't until years later, my junior year, that I realized something was seriously wrong. It took months and constant sadness. The problem was, I had no desire to acquire treatment. I didn't think it was necessary. Little did I know, I needed it and I'm not alone.

It happened at a regular check-up at my pediatrician when she began asking me questions. I knew something was wrong. The room was tense, and my heart was pounding. "How long has the sadness been lasting, three days, three weeks?" I counted down the months. "It started in November, so five months." The questions continued. "How is your motivation and energy?" I reflected on the past few weeks. I had missed multiple days of school, I was constantly skipping class or showing up late, and I was spending hours in my coach's classroom instead of in my actual classes. "I find it really hard to get the motivation or energy to do anything," I explained. "Do you have anything to look forward to?" my doctor asked. I looked from my mother to my doctor, contemplating my answer as I had a big family vacation coming up and I didn't want to upset my mother, "No," I responded. My mother sighed, sadness filling her eyes, and the wave overcame me, igniting the blaze. Crying, I looked into my doctor's eyes. She then explained to me that what I was experiencing was not sadness but depression. I laughed out of discomfort, for this information did not surprise me. I knew my diagnosis long before the words were uttered out of her mouth. Those three words—"You have depression"—would change my life forever. Ever since that day, I have been living an internal battle with the enemy being myself.

The next year entailed psychologist, psychiatrist, nutritionist and doctor appointments. I felt as if I was constantly in counseling, explaining why my world came crashing down and why there was no hope left for me. I knew of friends who were experiencing the same thing, but the thing about mental illness is people don't talk about it. It is overlooked, it is shamed. People claim it's not real, it's for

attention, it's not hard to be happy, it's dramatic, it's weak. It's stigmatized.

The problem is, stigma remains a complicated concept to understand, yet it affects the vast majority of individuals with mental illness and there is not much being done about it. Elaine Brohan, a co-author for a study conducted by BMC Health Services Research explains stigma, "The classic starting point for defining the stigma of mental illness is Goffman's 'an attribute that is deeply discrediting.' The recognition of the attribute leads to this stigmatized person to be 'reduced... from a whole and usual person to a tainted or discounted one.'" Stigma is, therefore, a relationship to an individual and their stereotypes and attributes. Socially and culturally embedded into society, stigma is formulated through interactions. Patrick W. Corrigan, a member of the Illinois Institute of Technology and a co-author of a study explains, "Stigma is a very hard concept to understand, as it is developed through contact and interactions with people of various experiences." Similarly, as Bernice Pescosolido, an author for the Journal of Health and Social Behavior explains, "As a social phenomenon, stigma is rooted in societal relationships that are culturally and structurally shaped by society's norms and values." Not only is stigma a social phenomenon that affects society as a whole, but it proved to have detrimental effects on my mind. Ignition to the flame.

My entire junior year I was constantly urged to repress my thoughts and to simply move on and get over it. Maintaining my image as a varsity dancer and a leader in the school, I was under constant pressure by my peers and people would often mistake me for a liar. People didn't understand that friends, popularity and being on a varsity dance team didn't always lead to happiness. People would constantly assume I was asking for attention when they noticed the cuts on my arm or my suicidal tendencies. "I want to die" was not just a saying to me, but it was a wish I hoped to fulfill. No one seemed to understand the difference between a joke and a wish. I was told I wasn't sick, I was told I was making it up, I was told I had an image to maintain. Of course, there were some who understood or could help, but the vast majority of individuals I encountered simply could not understand my mental illness. Teachers would treat me differently, school counselors, police officers, principals. Not only was I treated differently as a result of my illness, but I did not receive adequate care. *The Lancet*, a medical science journal, explains this phenomenon perfectly, "There are many factors that attribute to poor mental health care, from lack of accessibility to health care services, to the overshadowing of diagnosis as a result of previous mental health care conditions, and the prejudice from practitioners that results from the dehumanizing effects of stigma." I was treated as an outcast, and I was left alone searching for understanding.

It wasn't until the last day of my junior year in high school that it all became too much. I drove home, locked myself in my bedroom and did whatever I could to defuse the blaze. I called my mom in tears and she rushed home from work, banging on the door, urging me to stay awake. I assured her I just needed to sleep. "Mom, please! I just need to rest, it wasn't that many, I'm fine. Don't call an ambulance." "How many did you take?" she asked, grabbing the bottle from the floor. "Only a couple," I told her as my eyes began to close and the words slurred out of my mouth. She began to get aggressive, "*Claire Lynn*, either you're coming with me or I'm calling an ambulance. Get out of bed. We're going to the hospital." After hours of pleading she dragged me out of my room, holding me up as I stumbled down the stairs and took me to the hospital where I was admitted for an intentional overdose. In the weeks following my overdose, I would be admitted to a psychiatric facility in which all of my rights as a human being would be stripped from me. I would be treated as a constant threat and my identity would be lost somewhere in that building.

My decision and my time in the hospital not only changed my perspective on life, but made me more aware of the stigma surrounding mental illness. What I had done was not viewed as something that needed to be stopped beforehand, but an irrational decision and an over exaggeration of my emotions. I was treated as though I did not have an illness or a diagnosable condition. Rather, my illness was overlooked as an irrelevant obstacle to many. Neil Seeman, a chief executive of the RIWI Corporation and a senior fellow at Massey College, University of Toronto, Toronto, Canada, illustrates the consequences of stigmatization, "Stigma increases mental distress and leads to feelings of shame, lack of desire to acquire treatment, social isolation and subsequently, a deterioration of physical and mental health." I was not just fighting an internal battle, but I was fighting the battle that stigma creates. It wasn't until years after my release from the psychiatric facility and recovery that I fully realized the extent of my internal battles. If I had been taught to understand the extent of my illness when I was first diagnosed, my life could have turned out very differently. I may not still be struggling with an

internal battle and a mind on fire, but because of the stigma surrounding mental illness, I was left to fight my own battles.

Today the flames have become a steady burn, and the waves come in as tides, brushing along the sand rather than crashing into the shoreline. My battle is just one of many that is fought everyday. Andrew Do claims, in America, according to the U.S. Department of Health and Human Services, one in every 25 individuals is struggling with a form of mental illness. Similarly, according to the National Institute of Mental Health, every year one in four adults will experience some form of mental illness. If awareness is brought to the issue, people like me may be spared from life altering experiences for ones that are more informative and peaceful.

As treating mental health can be a very controversial and challenging task, first stigma must be addressed. Keon West, a member of the Oxford Department of Experimental Psychology explains, by initiating positive contact and cooperation with these individuals, prejudice and stigma associated with mental illness will be limited to at least some degree. As stigma is socially constructed, reducing stigma will begin once society acknowledges the issue rather than ignoring it. Again, Pescosolido elaborates on the idea, "As Goffman (1963) reminded us early on, stigma is fundamentally a social phenomenon rooted in social relationships and shaped by the culture and structure of society. If stigma emanates from social relationships, the solution to understanding and changing must similarly be embedded in changing social relationships and the structures that shape them." Reducing stigma will begin once society acknowledges the issue rather than ignoring it. By understanding the effects of the stigmatization of mental health and how it impacts the lack of mental health care treatment, according to a report put out by San Diego County, studies show that is estimated that almost 80 percent of all individuals struggling with a mental health condition can lead productive lives if they receive adequate treatment. It is not just something that I or we can get over, but something that requires help and something that must be understood so the battle is no longer fought alone and the fire can finally be put out, for good.

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THE FRONT ROW

by TYLER JUDD

With thoughts racing, I push past elegant costumes filled with people standing totally still. Their faces are caked with makeup, heads topped with wigs, and hearts pounding just like mine. I bolt past the last of them and throw open the stage door. As I take center stage, I look out at the sea of heads attached to people I will never meet. I pause. There are no words capable of describing this feeling. Perched at the edge of the stage, with a grin so sharp it could cut glass, I hold one hand outstretched towards the hundreds of people eager to find out what I'll do next. I have their undivided attention. 5,000 people are on the edge of their seats, staring... waiting for me to tell them a story; just like you.

It wasn't just a normal day at The Country School on the scenic eastern shore of Maryland. In fact, it was far from normal. With a student body made up of 500 kindergarteners through eighth graders, the yearly class play was taken very seriously. Every class had one day a year during which the whole school would gather to watch them put on a show. Today was my turn. After I had built a reputation for myself as the most rambunctious and squirmy kid in my first grade class, our teacher had chosen me to play Arthur in this year's show, *Arthur Goes to Camp*. Having never been in front of an audience before, I was beyond nervous. As I took my place behind the curtain, I remember looking out to the sea of students filing into the auditorium. Peeking out behind the smooth black barrier, nervous energy filled my body once again. My mind was numb. I tried to recall my first line but my thoughts were consumed with that one time that Susie Fordi peed herself on stage and got made fun of so much she had to change schools. Clenching hard, (determined not to make the same mistake) I remember watching the curtain rise as I stumbled hesitantly onto the stage like a foal taking his first newborn steps into the world. Time stopped. I froze. This is it. I took a deep breath and gave that notorious piercing grin that sliced through the auditorium like a razor blade. I will truly never forget the feeling that shot through my veins as I delivered that first line. The spark that ignited my love of the stage: "You folks paid for the whole seat," I boomed. "But you'll only need the edge." As laughter erupted from friends and faculty alike, I had caught the bug. The nerves were gone. I never wanted to leave that stage.

From that moment on, I never stopped performing. My father took me into New York City when I was 8 years old in order to audition for a talent agent. I shot my first Hershey's chocolate chip commercial when I was 10 and opened in my first musical at the age of 14. I loved performing so much that I would leave home every summer for the next 6 years. For weeks at a time, I studied at a Performing Arts Academy summer program in New York state. My theater obsession got so bad that some years I even had to beg my mother to fly with me to Atlanta, Georgia in order to participate in the annual Junior Theater Festival. My parents were always my biggest supporters. No matter where I performed, what I did, or how long the show was, my dad was always in the front row. Perched on the edge of his seat so far he could almost touch the stage, he would beam. Every line I delivered, every note I sang, he would smile. Without fail, after every show, my dad would give me notes for hours at a time. He remembered every detail of what went on throughout the show and never ceased to provide endless comments on things I could do better or parts he liked the best. It was this wild enthusiasm from my dad, coupled with my love of the stage, that fueled my need to perform.

On the 30th of July, 2014, everything changed. My father killed himself a week before his 45th birthday. I was broken. I stopped rehearsing. The very thought of the stage made me sick. I stopped auditioning for shows. I was done. For the next two years of my life, I failed and what felt like everything. My grades were bad, I made few friends, kept to myself, and stopped getting on stage. The following school year was the most challenging performance I ever managed; the longest show that I never auditioned for. I hated it.

My father was comedian. He loved making people laugh. Having graduated from medical school and opening up the largest private practice for women's health on the eastern shore of Maryland, my father was a doctor. In addition, my father was an artist, a carpenter, an athlete and a storyteller. He would light up at any opportunity to captivate an audience. Leaning forward in his chair with a grin so sharp it could cut glass, he would glue listeners to the edge of their seats. It was his love of performing (albeit informally) that truly led me to become an actor. My father was a man of many talents and it was his eclectic nature that intrigued almost anyone he met. However, despite being a true polymath, my father was an even better dad. It wasn't his support of my theatrics that really shaped me as a boy. It was the camping trips where we would bury ourselves deep in the Appalachian trail. It was the afternoons where we would go out and throw the frisbee in the backyard. My boyhood was fostered with late night talks by the bonfire, trips to the car dealership to test drive Ferraris, rocking out to Rush and Zeppelin in the living room. My young mind latched on to every last nugget of info, every last lecture on the inner workings of the combustion engine, and every "I love you son." I will never truly be able to understand what led my father to end his life. I will never understand why he left us.

I distinctly recall the first show I ever did after his death. Two years had passed and my mother convinced me to audition for a local production of Peter Pan. Having done the show years before as a Middle School Musical, I reluctantly agreed to give it a shot. As I walked into the theater on the day of auditions, everything felt wrong. The piano stared at me like I didn't belong there, and the stage jutted out abruptly into the room like it was trying to taunt me. I mustered up the courage to sing my 15 bars and deliver my monologue to the overly mean looking director, slouched over a folding table. "Looks like we found our Peter", he yelled out after I had finished singing. Awesome, I thought, not what I wanted to hear after having avoided anything to do with the stage for the last two years.

In the following months, rehearsals went smoothly and I had almost convinced myself I was ready to perform again until opening night rolled around. Standing there behind the curtain I looked out into the front row. A heavy knot built up in my throat as I scanned the rows of cushioned seats that once seemed so inviting but now seemed to hate me. My father wasn't in the audience. All I saw were strangers. I hated it. The show opened, and I sucked. Well, at least I thought I sucked.

Like a plane without wings, the first act flew by. Every possible thing seemed to be going wrong. It wasn't until the last number that I realized what a fool I was being. It was all in my head. The show was fine. I was overthinking it. As I looked out into the audience for the last time before curtain call, a switch flipped. Scanning the crowd as I flew through the air, attached to cables bolted into the proscenium, I scanned the front row again, this time from a different vantage point. Looking out into the crowded theater, I saw my mom and sisters, all beaming. The old man in the front row that repeated every line of the show to his deaf wife was smiling. The kids in the front row had stopped squirming. When my feet hit the ground on the other side of the stage I could feel my dad looking down on me. Perched on the edge of his seat, he was giving me that same smile that I knew all too well. The finale was electric, the curtain fell and I let out a sigh of relief. As I walked out into the audience to meet my family, I saw my first grade teacher waiting to congratulate me. What she said in the next moment lifted me out of a two-year depression with one single line. "I paid for the whole seat", she said with a tear rolling down her cheek, "but I only needed the edge".

Curtain.

LAST PLACE

by GINA SANDOVAL

It's my wedding anniversary and here I am, crying in the passenger seat of my husband's car. It was one of those special occasions when one would expect a night of nothing but romance and happiness but instead, it ended with an upset wife and a confused husband. The light mood had shifted so suddenly that it caught us both off guard. As I wiped the tears from my eyes, I wondered what my husband must be asking himself. "What could have possibly gone wrong? Why is she crying? Did I run over an animal? Did someone just die?" These are all questions I imagine are running through my husband's mind at the moment.

"I'm so sad I never got my college degree."

My husband, Alex, glanced over with a puzzled look on his face. After all, we had just enjoyed a lovely dinner for two on a beautiful summer evening in Golden, Colorado. Windows down, the warm breeze playfully messing up the hair I had spent minutes to style. With the sun setting, the color of the clouds took on a rich, vibrant hue. This is what photographers would call "the golden hour," making this moment in place and time just perfect. As we continued cruising down the highway, we were playing music from one of our favorite movies, *Apollo 13*. The end title is a powerful song, one that evokes a feeling of courage and strength. Yet I felt the complete opposite of those two words as I was listening to the music. I felt like a failure which, according to the famous quote from the movie itself, "was not an option." No matter how hard I tried, however, I couldn't help but feel as if a Band-Aid had been ripped off a wound. The pain was quickly rising to the surface and I felt absolutely powerless to stop it.

Alex comforted me like a loving parent would comfort their child, offering nothing but encouragement and reassurance. I like to think of him as my own George Bailey from *It's a Wonderful Life*. Like George, he is always so eager to help those in need, a man who is willing to make sacrifices so that others may have a chance at success and happiness. And as for the life he has given me, it has been nothing less than wonderful. In a calm tone and without hesitation, he says, "Right. It's settled then. When we get home, you're going to enroll back into college and finish your degree. We'll do whatever it takes, even if it means hiring all the tutors in the world. No matter what, I'll help you achieve your dreams." I was at a loss for words. All I could manage was a deep sigh and a simple, "Okay." Alex's British accent, blue eyes, and dimples make it hard for me to say no to anything.

The mood shifts yet again and now I'm in disbelief. As Ron Burgundy would say, "Boy. That escalated quickly." One minute I am celebrating 9 years of marriage with Alex, dining on exquisite food, drinking the finest and most affordable house wine the restaurant had to offer, the next I'm preparing myself for exams and morning lectures. A decade had passed since I dropped out of The University of Colorado Boulder to move to England to marry my British pen-pal. At the time, I figured it wouldn't hurt to take some time off and return to college once Alex got his green card and we moved back to America. Finally, after an embarrassingly long hiatus, it was because of Alex that I was blowing the dust off my backpack and marching back into the classroom, once again, as a CU Buff.

We are home now and as soon as I walk through our doors, I go straight to my computer. "I'm scared, Alex. What if the other kids don't like me?" I say as I nervously turn the power on. This statement was intended as a joke, yet there was a kernel of truth to it. The thought of going back made me feel as if I were a child who was heading off to school for the very first time. Except that this time I would be returning to school much older, marginally wiser, and definitely softer around the midsection. And instead of stuffing my backpack with cases full of crayons and bags bursting with candy, I will be heading off to school with bottles of antacids and pain killers. Oh, how the mighty have fallen and can't get back up.

The path to this point in my life has been a long, crazy one with many unexpected twists and turns along the way. As I prepare

myself for the long journey ahead of me, I feel a bit unprepared and frightened. As I was re-enrolling into college, I never imagined that I would actually be declaring astronomy as my major. I suspect that my 5th grade teacher, Ms. H, would feel just as surprised as I am feeling at the moment.

Twenty-five years ago, I was anxiously standing before my 5th grade class giving a presentation on what I wanted to be when I grew up. The intention of this assignment was to have us open up and explore the world around us. It was our task to discover new things, to learn more about ourselves and figure out what goals we wanted to achieve when we reached adulthood. There simply was no right or wrong answer a student could have given to the class. Want to be a doctor? Great! Veterinarian? Fantastic!

“I want to be a Teenage Mutant Ninja Turtle!” one kid had enthusiastically declared. Well, okay then. We admire your imagination and wish you all the best!

After several students had presented their future dream occupations, radioactive turtles and all, it was finally my turn. I looked at the faces that were staring at me, ready to open up to my fellow peers and, for a brief period, welcome them into my little world of dreams and aspirations. At that time in my life, all I wanted to be was an astronomer. I wanted to peer into a telescope and study the sky above me, learning all about the mysteries it contained. Black holes! Pulsars! Asteroids! All celestial objects that were slightly more terrifying than having to speak in front of a large group. As I was giving my presentation, I was completely aware that I was far from being a gifted child; I was fairly average. The fact of the matter, though, was that the passion was there and all I needed to do was keep my head up and work hard. Anything is possible if you set your mind to it, right?

Wrong. Because as soon as school ended, my teacher approached me and squashed my dreams as if they were a disgusting, disease-ridden insect. Placing an arm around my shoulders, Ms. H leaned in and said, “You are too dumb to be a scientist, you really should reconsider your future goals.” I looked up at her face and was greeted by this cold expression. To others, I imagine Ms. H appeared harmless. She was a short, soft spoken woman with braces that were forever glistening in the fluorescent lighting of our 5th grade classroom. Yet in this moment, she became an ominous presence, a towering figure with words as sharp as knives. I was stunned by such a brutal opinion and confused as to why I had been singled out, feeling as if the world I had taken so long to build and protect had succumbed to a devastating attack in only one swift blow. All the walls had come crumbling down and I was left feeling defenseless. I was sad, hurt, and angry that one person could rob me of something that I loved in a matter of minutes. What was even more frustrating was the fact that I *let* her rob me.

As soon as I got into the passenger seat of my mother’s car, I began to cry.

“Why are you crying?” my mother asked.

“My teacher said that I’m too dumb to be a scientist.”

Within a nanosecond, my mother burst out of the car like a hungry lioness in search of blood. In this instant, my mother was the predator and Ms. H was the unexpecting warthog. I stood behind my mother as she sunk her claws into Ms. H. “How DARE you tell my daughter that she’s not good enough. She can do whatever she wants to in life and you have no right to tell her she’s too dumb for anything.” Time felt as if it had stopped. It was like a scene from a horror film that was too scary to look at, so you covered your eyes and hoped that it would just end as quickly as possible. Except this was real life, real people, real emotions. My mother had, figuratively, torn Ms. H to shreds because she had once been a teacher herself. She knew that a teacher was someone who should be inspiring the next generation, someone who was supposed to be helping prepare their students for the big world that awaits them, not destroy all of their hope.

In addition to being aware that I wasn’t a gifted child, it had also become very clear to me that I wasn’t a particularly confident one, either. I foolishly took Ms. H’s words to heart and had accepted the fact that I was simply not good enough to be an astronomer. I decided to step aside and allow the smart kids to stampede past and do science without me. Yet, there was still that part of me that always looked longingly into a chemistry lab, wishing I could join in on the mixing of dangerous chemicals and the wearing of lab coats and goggles. I so desperately wanted to be that student who could perform experiments, write up reports, and be able to whip out their fancy calculator in a math class and actually know what the buttons meant. And even though several years had passed and I was now

a teenager in high school, I could still feel Ms. H following close behind me, whispering into my ear and filling me with doubt. “Keep walking, you don’t belong here.” she’d say. Admitting defeat, I continued down the hallway with my head and spirits down.

Even more years passed and here I am now, a full-grown adult. 25 years ago, I had expected to have been an astronomer by now but all I am at the moment is a blubbering, inconsolable 30-something who has officially made this the most depressing wedding anniversary ever. But the grief quickly turned into sheer panic because, just 2 weeks later, I was back on CU’s campus. My very first class in 10 years was on ancient Greek and Roman comedy. My story, however, felt a bit more on the tragic side. I sat there feeling like a character in a drama, an actor who was wearing a mask to try and disguise who they really were. I wasn’t fresh out of high school, I wasn’t a part of a sorority or sports team, and I didn’t live in a dorm room. I was 31-years-old, I was married, and I was a teenager when the Titanic sank. Okay, it wasn’t the actual Titanic, but I was there on opening night when James Cameron’s 1997 movie came out. I’m not *that* old.

I felt like an imposter. I looked around to all the faces that surrounded me and took note that everyone was just so...youthful. And although we were all in this together, I was still experiencing that feeling of being an outsider looking in. I still longed to be a part of the group, to be considered an equal among my peers. There was a time when I felt excluded because I was intellectually inferior, now I felt a divide because I was chronologically superior. I was drowning in an ocean of conflicting emotions. The regret of taking so long to accomplish my goal, the pain of rejection, the excitement of being thrown a lifesaver and getting a second chance.

In time, I began to pick up the pieces that Ms. H had scattered all over the place. Those feelings of fear still lingered, but so did that strong desire to be that student who could do experiments, write up reports, and know what the buttons on their calculator meant. Talents that would have come in pretty handy on the first day of my geology lab because, shortly after the professor introduced herself, I learned that we were going to be doing some trigonometry. I looked at the assignment and sheepishly raised my hand.

“Do you need help?” the professor asked.

“I don’t know how to do this.”

“Just hit the tan button on your calculator!”

“...which one’s that?”

Again, a wave of emotion engulfed me. Maybe Ms. H was right, I didn’t belong here. I wanted to run out of that room and never look back.

But I didn’t. I stayed and continued to rebuild my little world. Every new class was another layer in my fortress, every good grade was the cement that held it all together. The more classes I took, the more I learned, the more hope I was regaining. Perhaps my destiny as an astronomer wasn’t written in the stars. After all, up until that first day of my geology lab, the only tan I had been familiar with was the kind you got after a relaxing day on the beach while drinking mimosas. Yet, here I am. A seated deer in headlights who is without a clue and, more importantly, without a mimosa.

After all these years, I have finally accepted the fact that this world is still there for exploring and discovering new things, no matter what age I am. There was a time when I wanted to look above and study the stars, now my desire is to look at the ground below. Dinosaurs! Fossils! Mummies! This newfound passion of mine was enough to make me switch my major to biological anthropology and add geology as a minor. It wasn’t the original goal that I had set in mind many years ago, but life is full of surprises, isn’t it? It’s incredible that it took an unbelievably horrible teacher to knock me down yet one amazing husband to pick me back up. Alex and Ms. H are two very powerful and opposing forces in my life. They are the modern-day tale of good versus evil, destruction and redemption, and eventual triumph over the detestable villain.

With my head and spirits up, I continue running in this marathon after having spent a long time sitting on the sidelines. And like an athlete who’s been out of the game for a while, I was a bit rusty when jumping back into the competition. There have been many hurdles in my way, I’ve fallen down quite a bit, but with the love and support from my loved ones, I’ve managed to dust myself off and continue limping toward that finish line. I may feel a bit more worn out and tired than most on graduation day, but at least I’ll be there in the stadium. I may feel as if I finished this race in last place, but at least I completed it. Now hand me that mimosa.

TRANSGENDERS TODAY

by ZIWEI CHENG

Introduction

Recently, the administration of Donald Trump adopted an explicit definition of gender as determined on a biological basis and ‘transgender’ could be defined out of existence under Trump administration (Green, Benner, Pear, 2018). Such acts of the president surely symbol the back stepping of transgender rights and further trouble the transgender population. Overall, transgender population experience significantly more health and social issues than the general public. According to statistics, 41% of trans people have attempted suicide, 50% have been raped or assaulted, and 80% of trans students feel unsafe in school (Pan, n.d.). The purpose of this paper is to learn about transgender population’s challenges from childhood to college because it is essential to investigate why transgender population have a significantly higher rate of depression and what can gender-conforming population do to support transgenders.

The first topic in the article is the challenges transgender teenagers face in relation with their families, school and health. Trans teenagers may risk losing support from their families when they come out, be ridiculed in school by their peers and bear potential health risks when they choose to inject hormones or undergo surgery. Also, most health insurances do not cover the expense of transgender surgery or hormone injections and it could expose transgender population to financial crisis. Second, the essay will link transgender struggles with college lives. Inadequate social accommodations of gender-neutral bathrooms, gender pronouns and dorm arrangement in colleges could contribute to transgender population’s difficulties on campus. Overall, the topics of transgender struggles can fit into the protests and histories of homosexual and gender equity and the changes in humane identities. The essay intends to comprehend what actions are currently being taken to assist transgender population by doing research in CU Boulder’s housing accommodations for transgender students, gender-neutral bathrooms on campus and stated discrimination policies and what further actions can people take to assist the transgender population by asking transgender support group members for opinions.

Background

My article focuses on the significant higher depression rate among the transgender population, invests in the struggles transgender population face from childhood to college life that result in the depression and what actions are being taken to assist them. First, in the article “Understanding the transgender community” (Understand the transgender community, n.d.), the author discusses the definition of being a transgender and the increased visibility of the transgender community. Second, the author briefly states the possible challenges transgender people may encounter in the society such as the lack of legal protection, anti-transgender violence, poverty and so on. Although such topics are too broad for my research in transgender difficulties in childhood and colleges, the article provides me with useful background information about the transgender community and helps me identify possible topics in my paper such as peer harassment, health care barriers, and homelessness among transgender population. Then, in the transcript of the documentary “Growing up trans” (Navasky & Connor, 2015), the producers illustrate the lives of transgender children and teenagers along with their interaction with schools and families. The documentary describes the fear of transgender teenagers when they have to go through their biological sex’s puberty. Even though it is possible to prevent puberty through hormone blockers, the medication can be health-concerning because it is a field with too little research to predict any long-term side effects such as cancer. Also, hormone injections’ consequences such as voice change cannot be revoked even when the child intends to stop and be his/her biological sex

one day. This documentary equipped me with vivid examples of trans teenagers’ difficulties in everyday lives and specifies the broad problems such as health insurance for the transgender population with authentic examples. In respect of transgender college students’ difficulties, my article will concentrate on two social accommodations on campus: gender-neutral bathrooms and dorm arrangements. In Oklahoma University, its Housing Policy reveals that housing is assigned by birth gender unless the student has already completed a sexual reassignment surgery (Albertson, 2016). Also, researchers found that housing professionals may marginalize transgender students to concentrate on the majority of gender-conforming students when enacting housing policies (Pryer et al., 2016). A plausible solution to improve transgender students’ happiness in colleges is to provide housing staff with more training and knowledge about transgender students when they arrange dorms. These researchers give me the framework to connect their work with my research into CU Boulder’s housing arrangements for transgender students, how the university’s actions result in transgender students’ happiness rate and what suggestions can be made to the university to modify its policies. Other than dorm arrangements, transgender bathroom rights is also in a hot debate. In a high school in Missouri state, more than 100 students staged a protest when one of their transgender female classmates was allowed to use the female bathroom (Workman, 2015). In the essay “North Carolina repeals ‘bathroom law’”(Park et al., 2017), the author reports the end of tumult when North Carolina state withdrew the Housing Bill 2 that “required that people at a government-run facility must use bathrooms and locker rooms that correspond to the gender on their birth certificate” earlier last year (Park et al., 2017). These essays motivate me to collect data about the gender-neutral bathrooms on campus and analyze what bathroom rights mean to transgender students.

Method

To investigate the transgender population’s overall happiness in CU and the school’s policies to support them, I intend to contact the Gender and Sexuality Center that offers support for the LGBTQ community and ask them a few questions by email. Professor Feldman provided me with several email addresses of the staff in the Gender an Sexuality Center and I included the questions listed below in my email interview with the center’s trans specialist:

- 1, What are the dorm arrangements of CU that accommodate the transgender students?
- 2, What are the main problems transgender college students face on campus?
- 3, What suggestions can be made to gender-conforming students on how to properly interact with transgender students?

From these questions, possible virtues and flaws of CU’s actions to support transgender population can be identified, further suggestions could be made to improve campus atmosphere for transgender students and instructions for gender-conforming students on how to interact with transgender students can be stated. I believe such an interview of experienced staff of LGBTQ department is more appropriate than to survey other students. The reason is that transgender students may not feel comfortable to fill out surveys about their depression and gender-conforming students may not be familiar with transgender students’ issues to provide useful information. Based on the staff’s response, I will link their opinions with my prior research to address the following questions:

1. How are CU’s resources for transgender students different from other schools in the US and how effective are they?
2. What are the differences between transgender teenagers’ struggles and transgender college students’ problems; do the issues improve or get worse over their lifetime?
3. What are the simple steps gender-conforming population can do to support the transgender community?

Analysis

After sending out the email, I received a response from the trans specialist in CU’s center for inclusion and social change. His answer is concluded below:

Q1: What are the dorm arrangements of CU that accommodate the transgender students?

R: Trans students can live in any dorm with any gender they choose, Hallett hall has gender-inclusive housing on a floor called

spectrum which is a dedicated LGBTQ and ally space, and Will Vill East will have a portion of a floor devoted to gender inclusive space, and the entire building will have gender inclusive restrooms/shower facilities further next year.

Q2: what are the main problems transgender college students face on campus?

R: Most of their challenges come from poor interactions with other students, and trans students do not feel as welcomed, supported, or valued as cisgender students. Finding acceptance in classrooms through professors asking about pronouns, trans issues in conversations and finding a supportive community can also feel very challenging.

Q3: what suggestions can be made to gender-conforming students on how to properly interact with transgender students?

R: The best thing cisgender students could do is educating themselves on why pronouns are important, remember to use the proper pronouns, learn about what issues trans people face in their lives due to systems of oppression and bring those issues up in classrooms. Being an ally and speaking up for trans people takes much pressure off of trans students and makes them feel more included on campus.

In general, CU's resources stand out in ways that the policy is more tolerant and community support is more available. In New York, the NYC Department of Buildings required all large new buildings to install sex-segregated facilities. When NYU submitted a petition for an exemption of gender-neutral bathrooms in their renovated building, the department rejected them because of "concerns about security and liability" (Wade & Ferree, 2015). In CU, even though the gender-neutral bathrooms are not in majority, they spread out in many places on campus, and the idea of having an entire building with gender inclusive restrooms/shower facilities in a distant future is definitely innovative. Such acts indicate that the school trusts and supports the transgender students and do not use "safety issues" as excuses to deny transgender students' on-campus resources. However, CU could improve in training for staff and students about the LGBTQ community because sometimes professors assume pronouns in classes to avoid costing time in asking about pronouns and many students do not take preferred pronouns, names or identities of others seriously.

Also, the trans specialist stated that "the challenges transgender population face depend on their identity development and social support they receive." When transgender teenagers lose family support as a youth, meeting basic needs to survive is the priority. When they do receive financial and emotional support from families, the social pressure from peers and oppression from social systems become the primary source of their stress. For transgender college students, their issues sometimes are more complicated because they are in transition from school to society. Grown-up trans can make salaries and live in independence, but the structure in society is often based on the gender binary (the classification of sex and gender into two distinct, opposite and disconnected forms of masculine and feminine) and their identities are often marginalized ignored or in gendered institutions.

Conclusion

For the gender-conforming population, the responsibility to accept transgender population's identity, acknowledge their importance in a social context and support them with action should be embraced and shared. First, as shown that 40% of the homeless youth served by agencies identify as LGBT (Durso & Gates, 2012), it is crucial for government legislature and organizations to address the problem of homelessness among transgender youth. Also, more hospitals and insurance can include medical resources, mental guidance and financial coverage for transgenders and their families. Secondly, gender-conforming people should not only ask about pronouns when they interact with others, but also educate themselves on why the pronouns are essential. People often assume pronouns and sexuality because they are used to the ideology that everyone's gender identity corresponds with the biological sex. When we start reevaluating such idea and make changes in progress, the significance of pronouns would be more visible and transgender population would stop existing as a social minority. Thirdly, changes do not happen overnight, and when bullying, ridicules, and assaults keep happening to transgender population, we should all take it seriously and step up to be an ally. When students discriminate transgenders because of their identities, the others witnessing such phenomenon should not sweep it under the rug but speak up. The courage to address others wrong-doing and be in a united front with transgenders would not only stop the bullying from recurring but also take

some pressure off transgenders' shoulders. Whether it's a simple question about pronouns in conversation, a courageous confrontation when transgenders are being discriminated, or a more complicated legislature that bring structural change in society, differences are being accumulated. As long as we understand that trans people deserve happiness and rights like everybody does, a more embracing society will be rising.

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VIETNAM - JUST OR UNJUST?

by CODY OSICKA

<https://drive.google.com/file/d/1ETRmWzGZMf2JJLXUeETo9WKYloQLnVe2/view?usp=sharing>

PROFITEERS OF CARE: HUMAN RIGHTS IN THE FACE OF PHARMACEUTICAL PATENTS

by JOSHUA MAK

At his birthday party, a 6-year-old named Timmy Elison leaps into the ball pit. After several minutes of play, one of Timmy's friends starts screaming, "Timmy has fat lips!" In shock, Timmy's mother fumbles in her bag while his father dives into the ball pit to take Timmy out.

Indeed, the swelling of his lips and lesions on his skin are clear signs that Timmy is experiencing anaphylaxis, a severe allergic reaction. As soon as Timmy is heaved out of the pit, his mom rushes in and stabs his thigh with an EpiPen. After the next few minutes, Timmy's swelling subsides. A spilled bag of peanuts in the ball pit triggered Timmy's fatal peanut allergies.

Despite quelling the reaction, the Elisons now have other problems. Tight in finances, the Elison family just used their last EpiPen. With the recent surge in EpiPen prices, they will need to be more cautious around rogue peanuts.

In 2015, Mylan, the manufacturer of the EpiPen, went under fire for jacking the price for a pair of EpiPens from \$100 to \$600. The EpiPen is an autoinjector used for injecting lifesaving treatment for potentially fatal allergic reactions. Epinephrine, the EpiPen's active component responsible for treating anaphylaxis, is readily accessible since many manufacturers can produce the medication. Instead, the source of outrage was in the design of the EpiPen itself. By modifying its design, Mylan extend the patent exclusivity for EpiPen's design until 2025. If Mylan makes further modifications to the device for the sake of improving usability, the patent period may be extended even further. Therefore, all companies seeking to rival the EpiPen must construct novel designs for quick epinephrine delivery to ensure successful treatment of anaphylaxis. This has proven difficult. Chris Stepanian, CEO of Windgap Medical, explains that his company is struggling to develop an autoinjector to rival the efficiency and accuracy of the EpiPen's automatic needle injection (Keshavan, 2016). Companies that have managed to bring their own autoinjector designs to market are met with criticism from the professional medical community, claiming that these devices have cumbersome injection processes and inaccurate dosage delivery. For example, Sanofi recalled its AUVI-Q autoinjector after reports of the bulky devices inaccurately administering epinephrine. Since Mylan is the only company with a reliable autoinjector on the market, those wanting to protect themselves from fatal allergic reactions must engage in the commercialization of health and pay the EpiPen's \$600 price tag.

The Mylan decision calls into question the purpose of America's healthcare industry. As stated by bioethicist Joseph Millum of the National Institutes of Health (NIH), the International Bill of Rights "enshrines the right to health, which includes access to essential medicines" (2008). Matters of cost should not infringe upon one's ability to receive lifesaving treatment. Unfortunately, \$600 may not be an accessible price point for those suffering from severe allergy. Without policies in place to check the pricing strategies of pharmaceutical companies, patients lose autonomy in their healthcare decisions. However, as the International Bill of Rights is a moral consideration rather than a legal document, American pharmaceutical companies are not bound to acting in concert with human rights. It is unacceptable for pharmaceutical companies, entities working under the system of patient care, to act beyond the confines of moral law. As the physician is bound to the Hippocratic Oath to "do no harm," pharmaceuticals need to hold health to an equal standard for all in their moral duty to promote the health of society.

America's drug pricing system is inherently flawed because the lack of price caps for drugs under patent and exclusivity protections prevent at-need patients from accessing lifesaving medications. Despite the flaws and injustices perpetrated by pharmaceutical patents, they are a necessary evil for incentivizing America's drug companies to pursue the research and development

of new medical therapies. I am not arguing that America should abolish its patent system – its removal may disincentivize novel pharmaceutical research. Rather, I recommend that the United States refers to the patent models of other countries, such as Canada, which have worked to both promote drug innovation while keeping costs reasonable for patients.

Without stronger government involvement in setting the prices of therapeutics, the temporary monopolies granted by patents and exclusivity can impose great financial harms upon consumers. There appears to be little justification for the higher prices American patients pay for their medications compared to the lower prices our foreign counterparts are charged in their respective countries. America's use of pharmaceutical patents for lifesaving drugs enable companies to price lifesaving medications beyond the means of many American patients, effectively violating their human right to fairly access medical treatment.

Clarification of Terms

Before continuing, I must define a few terms. A lifesaving drug refers to medications essential to maintaining the patient's life. A pharmaceutical patent is a legal document granting intellectual ownership for the development, or improvement, of a drug. Though patents themselves do not grant market exclusivity for drugs, current patent laws enable patented products to retain temporary monopolies on the specified drug (Food and Drug Administration, 2018). The market exclusivity term does not always last as long as the patent. As it stands, patents confer intellectual ownership for 20 years from the date the patent is filed. Though the market exclusivity period granted to new drugs varies, it typically lasts 12.4 to 13.7 years for prescription drugs (Wang, Liu, & Kesselheim, 2015). After the expiration of patents and exclusivity, generics can be produced by other companies, providing price-lowering competition in the marketplace. However, another company can produce a generic version of the drug prior to the exclusivity expiration only if it successfully challenges the drug patent. Lifesaving drugs are asserted as medications meant to either cure the patient, or at least prolong his or her life while alleviating suffering.

Considering the bioethical lens of this paper, I will establish an assumed understanding of human rights in the medical context. As a general term, human rights are obligated to all people without fear of discrimination due to any status such as race, sex, nationality, ethnicity, prison status, or religion. Stated within the International Bill of Rights, the UN General Assembly asserts that all people have a right "to the enjoyment of the highest attainable standard of physical and mental health" (United Nations General Assembly, 1948). Though the pharmaceutical industry is not legally judged by the International Bill of Rights, I will use this document as the basis of my ethical judgement.

Market Exclusivity and Patents Enable High Drug Prices

There are valid claims for the continued use of the pharmaceutical patent system in the United States. It is thought that the absence of pharmaceutical patents will disincentivize the innovation of novel therapies, which would ultimately harm patient welfare. Yet, the brief period of artificial monopoly attributed by developing a new drug is in fact a strong motivator for pharmaceutical companies to pursue the development of novel therapies. The legal resource UpCounsel states that about 80% of pharmaceutical revenues are attributed drug patents ("Why Are Drug Patents Important," n.d). With intellectual property rights being responsible for bursts of innovation and motivating today's economic growth (Lichtenberg, 2001), it is no wonder that 65% of pharmaceuticals would not have been possible without patent incentives (Mansfield, 1986). A survey of research and development (R&D) executives of 100 manufacturing industries, shows that only in the drug industry were "patents regarded by a majority of respondents as strictly more effective than other means of appropriation" (Levin et al., 1987), providing evidence that the patent system is particularly effective in motivating the pharmaceutical industry.

Pharmaceutical companies need financial incentives to drive drug research. According to previous research, intellectual property rights are, thus far, deemed the most effective method of innovation motivation. Naturally, the use of pharmaceutical patents will make drugs a bit expensive. However, the problem arises when pharmaceutical companies use their protections to exploit

consumers purely as means for profit. Mylan's EpiPen provides a first-class example of profit taking precedence over patient well-being. Turing Pharmaceuticals also exemplifies practices of unjustified corporate greed. Upon acquisition of the rights for Daraprim, a treatment for toxoplasmosis previously costing \$13.50 per pill, Turing Pharmaceuticals hiked its price by 5000% to \$750 per pill. Turing's CEO Martin Shkreli attempted to justify the decision, stating that the revenue would be targeted at creating new therapies to target toxoplasmosis. While it is not clear whether this was Shkreli's true intention, the medical community blasted the action. Dr. David Relman, infectious disease chief of VA Palo Alto Health Care, states that there is no impending need for an improved treatment for toxoplasmosis (Lorenzetti, 2015). Dr. Wendy Armstrong, professor of infectious disease at Emory University, states that Daraprim, despite its status as an older drug, has been very effective in the treatment of toxoplasmosis. There is no strong justification to invest finances in providing another treatment. Thus, it is clear that Turing Pharmaceuticals engaged in price gouging its customers with Daraprim.

With Turing Pharmaceuticals imposing heavy costs to toxoplasmosis patients, could other companies enter the market with their own treatments of toxoplasmosis? Considering that Turing Pharmaceuticals holds the patent to Daraprim, other companies will need to develop a novel therapy for toxoplasmosis rather than being able to create a generic version of Daraprim. Because few other companies are interested in producing treatments for toxoplasmosis, there are no other companies to check Daraprim in a competitive market (Sarpawari, 2015).

Despite the price hikes of both Turing Pharmaceuticals and Mylan, these two companies are still acting fully within the bounds of their legal rights. The United States is the only wealthy country that does not enforce price controls for pharmaceuticals (Baker, 2016). Dean Baker, Co-Director of the Center for Economic and Policy Research, states that the pharmaceutical exploitation of monopoly is why Americans pay about twice of what other countries pay for that same drug. Considering that these companies are able to operate just fine in other markets, there is little justification on the higher prices Americans pay for their pharmaceuticals. Pharmaceuticals play a vital role in the management and containment of disease in society. For these drugs to be useful, they need to be appropriately priced for consumers. This is a problem, considering that more than 70% of Americans deem their drug prices to be too high (Hurst, 2017). The inaccessibility of pharmaceutical drugs for some members of the American populace violates the clause in the International Bill of Rights stating that all people should have the right to access to medical treatment. Price-gouging pharmaceuticals need to be limited in the scope of their actions, however, it is important to understand that pharmaceuticals require a financial incentive if they are to continue supplying novel treatments for patient consumption.

The Duty of Pharmaceutical Companies to the American Public

Upon induction to the medical practice, physician takes the Hippocratic Oath to uphold specific ethical standards in regard to their patients. As physicians play an intimate role in the care of the patient, so do drug companies whose products are trusted to bring about positive outcomes in a patient's body. As key players in the space of care, pharmaceutical companies, like medical physicians, need to adhere to a code of ethical conduct in their service to the patient.

In regard to autonomy, drug companies need to respect one's decision to approach care. Without a price-capping policy in place, pharmaceutical companies are not restricted in how much they can charge patients for specific treatments. In the case of toxoplasmosis, for example, there exists only a single viable drug for treatment due to high specialization needed for drug development and patent protections preventing generic drug companies from vetting healthy competition to organically lower drug costs. If Turing sets the cost of Daraprim beyond

the patient's ability to pay, Turing effectively places a price on the patient's life, removing a sense of agency in the patient's care.

Additionally, setting Daraprim at an unreasonable price violates the principle of justice as far as fair access is concerned. By making Daraprim access exclusive to the wealthier tiers of society, Turing infringes upon issues of social justice in which traditionally marginalized members of society are effectively excluded from treatment. This perpetuates a notion that the lives of individuals in lower income brackets are less valuable as they cannot afford to pay the price tag for their lifesaving medication. This pricing decision also violates the UN General Assembly's declaration that all people have the right to access the highest level of attainable health, which includes treatment by essential, lifesaving drugs. Simply, having human life dependent on the whims on the market economy results in the violation of access to health. As a free acting market has no sympathy for those who cannot afford lifesaving drugs, the lives of low-income patients who cannot afford treatment are deemed less valuable.

As entities in the biomedical space, pharmaceutical companies have a duty of beneficence towards the patient populations they serve. This means that companies are morally required to act for the benefit of the patient. Oftentimes, this is satisfied by developing a lifesaving drug and making it available on market for patients in need. However, by setting prices beyond patient means, companies no longer act within the sphere of beneficence.

Consider Dolores Smith, who has a condition known as chronic obstructive pulmonary disease (COPD) and partial heart blockage (Mangan, 2014). Her husband also has COPD, along congestive heart failure and kidney failure. Despite having insurance, the Smiths face an out-of-pocket cost of \$2,000 annually, which is a significant sum considering that the couple's combined income is less than \$45,000 per year. The Smiths are lucky to have insurance to help cover drug costs in the first place. A survey by the Commonwealth Fund found that 27% of the adult American population reported going without medication for the past 12 months due to costs – even among those who were insured, 21% reported foregoing medications. This is concerning, especially in the case of chronic conditions, which can impose further costs to the healthcare system over time if left unchecked. In a downwards spiral, the unaffordability of lifesaving medications for individuals like the Smiths can exacerbate the burden of healthcare costs on society.

Companies that engage in price-gouging strategies, while commonplace, are not wholly representative of the whole pharmaceutical industry. For example, in his tenure in the early- to mid-1900s, George Merck of the pharmaceutical company Merck boldly stated that “We try never to forget that medicine is for the people. It is not for the profits. The profits follow...” (More, 2018). Merck's philosophy toward responsible drug provision is a prime example of what pharmaceutical companies need to follow. While I'm not against these companies making profits, I believe that placing profits over patients is morally wrong as it trivializes the suffering of the patient as a cash cow that can be exploited. As essential players in patient care, pharmaceutical executives should taking moral oaths, similar to the Hippocratic Oath, to keep them accountable to their moral duty of producing lifesaving pharmaceuticals for the benefit of society.

Can Pharmaceutical Companies Justify High Drug Prices?

In 2014, the Tufts Center for the Study of Drug Development estimated the price of developing a prescription drug that successfully makes it to market at \$2.6 billion (Fassbender, 2016). Out of that sum, the average out-of-pocket costs for pharmaceutical companies comes at around \$1.4 billion. Thus, it is easy to see that that drug development is a risky endeavor. In the case that the research and development of a potential treatment proves unviable, the company loses all that money in costs. Since only 9.6% of potential drugs make it from the initial stages of testing to approval (BIO, Biomedtracker, Amplion, 2016), pharmaceutical companies consistently find themselves at great financial risk when developing new products. Thus, drug companies justify their temporary monopolies by claiming that patents enable them to recuperate their losses from failed endeavors.

Using this to justify an uncapped monopoly is unconvincing. While the later stages of drug development are funded by pharmaceutical companies, funding for the initial discovery of the drug is mainly sourced from both state and federal governments, as well as philanthropic organizations (Institute of Medicine (US) Forum on Drug Discovery, 2009). This public cash injection for

pharmaceutical research reflects the slow process of drug companies initiating discovery research. Therefore, the costs of trying to discover a potential therapeutic agent among countless drug failures is being paid for by U.S. taxpayers. Taking the path of the risk-adverse, pharmaceutical companies benefit from initial taxpayer investment and avoid injecting their own revenues into the drug discovery process. After identifying potential therapeutic agents using external funding, a drug company may begin to start drawing from its own revenues with the hopes that the agent makes it into clinical trials – assessing therapeutic efficacy in human treatment. In addition to self-revenues for late-stage drug development, pharmaceuticals may also receive support from venture capitalists and federal agencies such as NIH (Institute of Medicine (US) Forum on Drug Discovery, 2009). Effectively, this means that pharmaceutical companies depend heavily on the monetary support of external funders, such as taxpayers, in funding company research. Since U.S. citizens have a large stake in the development of treatments, they should also have a voice regarding their accessibility. In effect, the pricing of U.S. drugs makes little sense.

Consider pricing of drugs in the U.S. in comparison to that of drugs in other developed countries. In an analysis of the 15 companies that supply the 20 top-selling drugs in the U.S., the list prices of drugs in other developed countries were only 44% of the price listings for the same product in the U.S. (Yu, Helms, & Bach, 2017). Perhaps this would make sense if selling their drugs in the U.S. was associated with high input costs than exporting the product. However, for these 20 top-selling drugs, the premium prices fetched by the U.S. market earned these 15 companies \$116 billion more than the listed prices in other countries. Demystifying suspicions of greater internal costs to these companies, only 66% of that \$116 billion was spent on global research and development. Bear in mind that this additional premium revenue value does not account for the additional revenue these companies may have received from standard pricing of the drug. Yet, the opposition claims that higher drug costs are necessary for research and development costs in the U.S. Yu *et al.* states that decreasing U.S. premium prices so that they match global R&D expenditures, across the 15 companies assessed, “would have saved U.S. patients, businesses, and taxpayers approximately \$40 billion in 2015.” To put this into context, 2015 was a year that the Centers for Medicare and Medicaid Services spent \$325 billion on pharmaceuticals. The already enormous sums of money spent on pharmaceuticals means that any possible cuts to costs would ease the burden on American society. The high drug prices imposed by pharmaceutical companies upon the U.S. market are without merit. Those who argue that the differences in pricing for the same product in different countries is to account for the high costs of R&D ignore the spending habits of pharmaceutical companies themselves. The excesses of cash resulting from the premium pricing for U.S. markets is more than enough for spending on R&D. As pharmaceutical companies should be focused on producing additional therapeutics for human benefit, the accumulation of leftover revenues are not justifiable.

The Government Needs to Step In

The current organization of the U.S. healthcare system forces patients to pay for their essential medications at premium prices. As stated earlier, the lack of price controls on drugs protected by patents enables drug companies such as Mylan and Turing to hike the prices of live-saving medications to unreasonable extremes. Countries, like Canada, that utilize pharmaceutical price controls in conjunction with drug patents have managed to maintain lower drug costs for patients while still spurring research spending on innovation (Menon, 2001). However, it is important to consider that the Canadian healthcare system adopts a national insurance system that covers all of its citizens for essential medical services. Operating on a single-payer healthcare system enables the Canadian government to directly negotiate prices with drug manufacturers, keeping costs low for consumers. While Canada's system exemplifies what a patient-centered approach to healthcare costs can look like, the system used by United States would make such proceedings more difficult.

Under America's market-based approach to healthcare, the presence of multiple insurance companies as payers makes it impossible to coordinate an effort to keep drug prices

low. With drug companies oftentimes holding monopoly power over their specific types of treatments, the multiple insurance companies acting in the market must accept the prices set by these companies. Under these circumstances, the market fails to ensure patients' rights to access affordable lifesaving medications. Thus, the U.S. government needs to step in as an intermediary between pharmaceutical companies and insurance representatives.

By working together with drug manufacturers and pharmaceutical companies, the U.S. government can negotiate ways to make medications more affordable to patents based upon relative risks of different diseases and increasing prices for certain drugs to accommodate and lower the costs of otherwise expensive treatments. Granting the U.S. government an active role in the pharmaceutical marketplace will likely be a costly transition in the short run. But as an entity for the protection of its people, the government owes to medical patients a chance to develop a drug payment system that both minimizes costs for purchasing lifesaving drugs while also ensuring the continued innovation of novel therapies.

Conclusion

Because of Mylan's unreasonable pricing strategies, the Elisons are not able to afford another set of EpiPens to save Timmy from further incidences of anaphylaxis. It is ridiculous that despite having the means to treat life-threatening conditions, financial barriers can sentence one to death. As the right to health is a basic human right, no patient should have to forgo a lifesaving treatment due to barriers of costs. Yet, the U.S. pharmaceutical patent system creates ample opportunity for some pharmaceutical companies to engage in unethical price gouging behaviors which can limit drug access to poorer patient populations. Many pharmaceutical companies justify high prices to fund further research, but reports have shown that pharmaceutical companies receive a significant research start up boost from American taxpayers. In addition to adherence to ethical practice, the role that everyday Americans play in the drug development process obliges them to fair access to treatment when necessary. The failure of the current drug market indicates that the U.S. government needs to play a greater role in upholding each person's human right to access lifesaving medications. In the redesign of the pharmaceutical marketplace, the U.S. government would do well to audit the practices of other developed countries, which have been successful in promoting drug innovation at reasonable costs to their citizenry. With modifications to America's pharmaceutical patent law, we can be closer to developing a healthcare system in which one's finances no longer need to be the difference between treatment and death.

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IS GENDER AFFIRMATIVE CARE THE ANSWER?

by ANNIKA REUTER

Is Gender Affirmative Care the Answer?

Why the American Academy of Pediatrics misses the mark in their recommendations for gender diverse youth

In her childhood and adolescence, Cari Stella questioned her gender, believing that she was actually a man and not a woman. In the midst of mental health issues, including depression, suicidal ideation, and self-harming behaviors, she declared at age 15 that she was transgender. At age 16, she began working with the TransActive Gender Center in Portland, Oregon, where she pursued medical transition. At age 17, she began taking testosterone. A few years later, she received “top surgery” (a double mastectomy). The therapists at TransActive validated what she told them about her gender and assured her that transition would alleviate her mental health issues, a common narrative in a time when transition therapies are becoming more publicly accepted. Yet after living as a man, Cari came to realize that the path she had taken had not helped her to make peace with her body or resolve her emotional pain. She stopped taking testosterone and has returned to identifying as a woman (Stella, In praise of gatekeepers: An interview with a former teen client of TransActive Gender Center, 2016).

Today, Cari advocates for greater caution in dealing with gender issues in children and adolescents, hoping that some of them may be spared from the trying process that she experienced. She criticizes the medical practitioners at TransActive, who she believes were too quick to affirm her assertions about gender and desire for transition, and did not do enough to address her underlying mental health issues, something which she believes would have alleviated her gender dysphoria without the need for costly treatment with irreversible effects. Cari’s story illustrates a dynamic that is becoming ever more prevalent in our society: gender, and even sex, are often viewed as fluid social constructs in which biology plays a minimal role. People can identify as male, female, both, or neither, regardless of their physiology. Often, children and adolescents like Cari find themselves caught up in the debate surrounding this issue: the number of children presenting at gender clinics is continually increasing (Chen, Fuqua, & Eugster, 2017), and scientists and medical practitioners debate the best ways to care for these youth.

As a response to this situation, in October of 2018 the American Academy of Pediatricians (AAP) issued a policy statement regarding the care of gender-diverse children and adolescents (“Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents”). In their statement, the AAP makes recommendations based on a philosophy of gender affirmative care. In gender affirmative care, providers validate rather than challenge an individual’s perceptions about his or her gender and provide any medical help needed to legitimize these perceptions. The AAP statement mirrors much of the language utilized by TransActive in their resources, and the TransActive site even features a document about the care of transgender youth compiled by the AAP in conjunction with the Human Rights Campaign (a transgender activist group) (TransActive Gender Center, 2018). However, as evidenced by Cari’s experience at TransActive, gender affirmative care may not be right for all children and adolescents.

This paper will argue that the AAP’s recommendation of gender affirmative care as the standard of treatment for gender diverse minors is misguided because it ignores the lack of high quality studies supporting its policies while relying on a selective, oversimplified analysis of the medical evidence that is available. In particular, these problems are notable in the AAP’s treatment of the comorbid mental health problems that these youth face, the issue of persistence and desistance in gender dysphoric children, and medical

affirmation therapies.

Relevant Terminology

Before discussing the AAP's statement, the definitions that will be used in this paper must be established. The field of gender study is evolving rapidly, as is the standard terminology used. Even the definitions of sex and gender are often fraught with ideological implications. For the purposes of this paper, *sex* is defined as a physiological characteristic of an organism that is oriented toward its reproductive role. Sex is genetically determined, and expressed primarily by the presence of male or female gonads (testes or ovaries) and secondarily by one's reproductive tract, external genitalia, and phenotype. *Gender identity* is defined as an individual's internal identification with the actual and/or attributed characteristics (physiological, psychological, and sociocultural) of the male or female sex. The AAP asserts that someone's gender identity could be "male, female, a combination of both, somewhere in between, or neither." In this paper, the terms male and female will refer to biological sex and masculine and feminine will refer to gender identity. *Gender expression* is the way that a person externally communicates their gender identity (for example, via hairstyle, dress, behavior, etc.).

Other important terms to understand include *gender diverse* and *transgender*. The AAP defines *gender diverse* as "people with gender behaviors, appearances, or identities that are incongruent with those culturally assigned to their birth sex." This is the overarching group to which the AAP policy statement applies. A subsection of gender diverse youth is *transgender* youth, or those "whose gender identity does not match their assigned sex and generally remains persistent, consistent, and insistent over time." The term transgender thus implies a more binary category, in that it typically refers to males with a stable feminine gender identity and females with a stable masculine identity. In this paper, the abbreviation TGD refers to transgender and gender diverse individuals.

Many, but not all TGD individuals are diagnosed with *gender dysphoria* (GD). This is defined by the DSM-V as "the distress that may accompany the incongruence between one's experienced or expressed gender and one's assigned gender." Gender dysphoria replaced the term *gender identity disorder* (GID) which was found in the DSM-IV, as the latter term was deemed stigmatizing. Both of these diagnoses imply that incongruence in gender identity is not a psychological problem in itself, but rather that a problem only exists when this incongruence causes distress. (American Psychiatric Association, 2013).

What does the AAP recommend?

Before entering into the problems with the AAP's statement, it is important to understand what they did and did not recommend. They define gender affirmative care as "developmentally appropriate care that is oriented toward understanding and appreciating [a] youth's gender experience." As stated above, this means that providers, working together with families, enable a child to explore his or her gender in a supportive environment. A child's experiences and beliefs are validated but not challenged, and deviance from the accepted norms of sex and gender is not considered pathological but rather a "normal aspect of human diversity."

Accepted within a gender-affirmative paradigm are gender affirmation therapies, which are "interventions that better align [an individual's] gender expression with [his or her] underlying identity." These include social affirmation, puberty blocking, cross sex hormones, name and pronoun changes in legal and medical records, and surgery. According to the AAP, social and legal affirmation are acceptable at any age. Puberty blockers are typically given in early puberty to prevent the development of unwanted sex characteristics. Cross-sex hormones are used to change secondary sex characteristics such as voice, facial hair, and body fat distribution. They are typically prescribed in mid to late adolescence, and individuals must continue taking them throughout their lives. The final gender affirmation therapy is sex-change surgery, which may include "top surgeries" such as mastectomies and "bottom surgeries" on genitals or reproductive organs. These therapies have varying degrees of reversibility. Social and legal affirmation are considered fully reversible, as are puberty blockers (although the long-term effects of using puberty blockers to delay normal (rather than precocious) puberty are not well-studied). The effects of cross sex hormones are only partially reversible, and the hormones have an unknown effect on fertility. Sex-change surgery is irreversible.

Within an affirmative mindset, cautious, hands-off methods of treatment are dismissed as "outdated [approaches] that do

not serve the child" and reparative therapies are deemed "not only unsuccessful but also deleterious." The AAP also emphasizes that although rates of mental health issues such as eating disorders, self-harm, depression, anxiety, and suicide are high among transgender youth, these issues "most often stem from stigma and negative experiences rather than being intrinsic to the child."

The Role of Mental Health Comorbidities in Gender Dysphoria

One of the fundamental ideas underlying the AAP's support of gender affirmative care is that the mental health issues that are often comorbid in gender-dysphoric youth (Connolly, Zervos, Barone II, Johnson, & Joseph, 2016) are a result primarily of the discrimination and stigma that TGD (transgender and gender diverse) youth experience. The AAP states that,

"There is not evidence that risk for mental illness is inherently attributable to one's identity as TGD. Rather, it is believed to be multifactorial, stemming from an internal conflict between one's appearance and identity, limited availability of mental health services, low access to health care providers with expertise in caring for youth who identify as TGD, discrimination, stigma, and social rejection."

The underlying implication of the AAP's position is that, given access to gender affirmative therapies and a supportive social and familial environment, the mental health issues of these youth will resolve without specific treatment. However, the primary paper that the AAP uses to prove this point (Edwards Leeper & Spack, 2012) does not actually provide specific data, but merely cites the authors' "clinical experience." Such a reference does not provide valid grounds to present gender affirmative care as the answer to the mental health issues of TGD youth.

While it is logical that bullying, discrimination, and feelings of isolation due to a nonconforming gender identity do increase the risk of psychological comorbidities, they do not account for all of the increased risk of these youth. For instance, a recent review (Fuss, Auer, & Briken, 2015) found conflicting evidence regarding whether mental health issues preceded or followed the development of gender dysphoria. A 2015 study from Finland (Kaltiala-Heino, Sumia, Työlajärvi, & Lindberg, 2015) found that of 47 adolescents referred to a gender clinic for services, the majority of those who experienced bullying or periods of peer isolation had done so prior to the onset of gender dysphoria. For 68% of the youth, their first contact with psychiatric services was unrelated to gender identity issues. It is also interesting to note an increased prevalence of autism spectrum disorder (ASD) in youth with gender dysphoria as compared to youth in the general population, an association that has been replicated in various studies (de Vries, Noens, Cohen-Kettenis, van Berckelaer-Onnes, & Doreleijers, 2010) but remains unexplained. These data suggest that merely attributing mental health issues to stigma and attempting to resolve them with gender affirmative care is an overly simplistic approach.

In contrast, a more thorough and responsible approach to TGD children who seek medical affirmation would give independent weight to any psychiatric problems that exist, resolving them to the greatest degree possible before proceeding with any gender affirmative therapies. In fact, one of the studies most often cited in support of the benefit of gender affirmative therapies in adolescents (de Vries, et al., 2014) required psychological stability *before* beginning medical treatment (Delemarre Van der Waal & Cohen-Kettenis, 2006). Because of the irreversible effects of cross sex hormones and surgeries, it is imperative that youth fully understand the consequences of taking this path and freely weigh the risks and benefits before making a choice. This kind of free, informed decision making is not possible when severe psychopathologies are present.

In addition, addressing comorbid conditions could provide the added benefit of resolving gender dysphoria without medical treatment. This is supported by the experiences of many so-called 'detransitioners', who undergo sex change surgeries only to eventually revert back to identifying as their biological sex. This group has not been formally studied and it is not well-established how common these individuals are, although their growing presence and commentary online suggests that they are not as rare as previously thought. Anecdotally, many detransitioners relate that after living as the other gender, they realized that their gender dysphoria was rooted in past trauma and was resolved not by changing their bodies, but by addressing this trauma in therapy. For instance, in an informal survey of over 200 detransitioned individuals, many former trans men (biological females) stated that as young people, they experienced bullying and misogyny (Stella, Female detransition and reidentification: Survey results and interpretation, 2016). They thus internalized

a negative idea of femininity that drove them to identify as men. Only in working through and healing from their past experiences were they able to resolve their gender dysphoria (Herzog, 2017). Such origins of gender dysphoria certainly may not be relevant for all TGD youth. But the potential benefits of therapy, the uncertainty about the role of mental health issues in gender dysphoria, and the necessity of psychological stability before making life-altering choices mean that it should be prioritized by practitioners and not subordinated to gender affirmative care as the AAP recommends.

Implications of Persistence and Desistance

In addition to the role of mental health comorbidities, a crucial aspect that providers must consider when caring for TGD youth is how likely gender dysphoria is to last into adulthood (“persist”). Most major organizations, including the American Psychiatric Association (APA) and the World Professional Association of Transgender Health (WPATH) acknowledge that anywhere between 50% and 98% of children with gender dysphoria eventually desist, or cease to experience gender dysphoria and come to identify as their biological sex. High desistance rates call into question the benefit of unconditionally affirming a child’s assertions about gender and desires to transition, as such an approach reinforces the child’s sense of identification with the opposite sex rather than allowing the process of desistance to run its course. In fact, a study of 127 Dutch adolescents who were referred to a gender clinic in childhood for gender dysphoria found that social transition in childhood was “an important predictor of increased persistence” (Steensma, McGuire, Kreukels, Beekman, & Cohen-Kettenis, 2013). In addition, for those children who do desist, the process of transitioning back to their birth sex after social transition can entail significant psychological distress (Steensma, Cohen-Kettenis, Biemond, & de Boer, 2011). For these reasons, high desistance rates typically are used to support more cautious, hands-off approaches rather than gender-affirmative care. So it is not surprising that in prescribing gender-affirmative care, the AAP dismisses desistance as a legitimate phenomenon, asserting that the “early studies” establishing that the majority of children with gender dysphoria desist had “validity concerns, methodologic flaws, and limited follow-up.” But is this assertion valid?

The high desistance rate of gender dysphoric children is one of the few areas in the field where many repeated studies have found consistent conclusions that, at least until recently, were not widely challenged. To cite just a few of the relevant studies, a 2008 follow-up study of 25 adolescent girls who in childhood had presented at a gender clinic with a threshold or subthreshold GID diagnosis found an 12% persistence rate (Drummond, Zucker, Bradley, & Peterson-Badali, 2008). A similar Dutch study of 77 adolescents found a 27% persistence rate (Cohen-Kettenis & Wallien, *Psychosexual Outcome of Gender Dysphoric Children*, 2008). And more recently, another Dutch study of 127 adolescents found a 37% persistence rate (Steensma, McGuire, Kreukels, Beekman, & Cohen-Kettenis, 2013). At face value, these studies seem to clearly indicate that a majority of gender-dysphoric children desist; however the AAP cites two researchers in the field of gender study in children who disagree: Diane Ehrensaft (“Prepubertal social gender transitions: What we know; what we can learn – A view from a gender affirmative lens” (Ehrensaft, Giametteir, Storck, Tishelman, & Keo-Meier, 2018)) and Kristina Olson “Prepubescent Transgender Children: What We Do and Do Not Know” (Olson, 2016).

Ehrensaft asserts that these studies measured only the persistence and desistance of gender dysphoria, without distinguishing gender identity or gender expression. However, this is simply not true. For instance, in addition to addressing gender dysphoria, the Dutch studies also used a gender identity interview, a gender identity questionnaire, and measures of body satisfaction, which they compared in childhood and adolescence for children who had initially presented at their gender clinic. Regardless, even if studies did not include gender identity and gender expression, Ehrensaft does not explain why this invalidates them. It is still apparent that a majority of children in these studies who initially met some or all of the DSM criteria for gender dysphoria or gender identity disorder no longer met these criteria at follow up and did not seek sex-reassignment in adolescence.

Ehrensaft’s second criticism states that the numbers of desisters were inflated, because in the two Dutch studies any children who did not return to the clinic for treatment were assumed to have desisted in their gender dysphoria, even if the researchers were unable to contact them. While at face value this seems a valid criticism, it neglects several aspects of the studies in question. First, even discounting the adolescents that did not respond for follow-up, a majority of those children who were contacted at follow-up had still desisted in their gender dysphoria. Second, as the clinic in question was the only one in the country to provide gender services, it is

not likely that those who did not return to the clinic sought sex-reassignment treatment elsewhere. Finally, among those who did not return for treatment, the nonresponding group was not significantly different from the responding group in any demographic measures. Therefore, because these non-returning groups were similar, and all those non-returners that responded to contact attempts had desisted, it seems reasonable to assume that desistance was prevalent even among those who did not respond. All of these points were considered by the researchers and noted in their discussions of their results.

The other researcher cited by the AAP to criticize estimates of desistance rates is Kristina Olson. Olson attempts to invalidate the desistance rates of TGD youth by claiming that the children who desisted “were not transgender to begin with.” She states that “even those [children] who met the GID diagnostic criteria were rarely transgender. Binary transgender children (the focus of this discussion) insist that they are the “opposite” sex, but most children with GID/GD do not.” Olson implies that if researchers only performed follow-up studies of these binary transgender children, persistence rates would look much different. While this may be true, Olson’s paper does not address the fact that that it is not only “binary transgender” children that experience distress about their gender identity and who seek some kind of treatment as a result. Children experience varying degrees of nonconformity in their gender identity, ranging from merely exploring the roles of the other gender, to wishing that they were the other gender, to stating that they in fact are the other gender. All of these classes of children may seek assistance from medical and psychological professionals, and all deserve to have their distress addressed. The AAP itself recognizes this fact, as its statement distinguishes between ‘transgender’ and ‘gender diverse’ children and adolescents, yet gives recommendations for the group as a whole. In citing Olson’s paper as a basis for dismissing cautious approaches based on desistance rates, the AAP is contradicting itself. Claiming that desistance is not a relevant phenomenon for a small subsection of gender diverse youth does not prove that it is irrelevant for the majority of the population that the AAP recommendations actually address.

A final aspect of desistance that the AAP does not address (and which, in fact, is discussed by both Ehrensaft and Olson in their commentaries) is that more and more evidence has emerged to indicate that there are aspects of a child’s gender dysphoria that are predictive of persistence. Several studies have shown that the stronger a child’s gender dysphoria, the more likely it is to persist (Steensma, McGuire, Kreukels, Beekman, & Cohen-Kettenis, 2013). In addition, the type of assertions made by the children has been correlated with persistence: children who assert that they *are* in fact the opposite sex are more likely to persist than those who state that they *wish* to be the opposite sex (Steensma, Cohen-Kettenis, Biemond, & de Boer, 2011).

These findings could guide recommendations about the treatment of gender dysphoria, yet the AAP ignores such nuances in prescribing gender affirmative care. For example, for children with less intense dysphoria, or who express a wish to be the opposite sex rather than a firm belief, parents and providers could implement a more cautious approach. Rather than affirming the possibility that a young girl could actually be a boy and automatically supporting any desire that she may express to transition, they could work with her to address some of her beliefs about gender roles or stereotypes. For instance, in the 2011 Steensma study, all of the gender dysphoric youth reported that they preferred activities and toys associated with the other gender. A provider could help a young girl with less intense dysphoria who wishes to be a boy (rather than believes that she is one) understand that preferring sports or video games to dolls is legitimate behavior for a girl. Realizing that her preferences do not actually make her a boy but rather a less stereotypical girl may benefit her more than affirming her desires to be a boy. Such an approach would potentially spare her from future irreversible surgeries, infertility, and a lifetime of hormone treatments. The AAP’s recommendations, however, do not take into account the characteristics of an individual’s gender dysphoria that may point to the benefit of this more cautious, less affirmative treatment for him or her.

The AAP, in using Ehrensaft’s and Olson’s ideas to dismiss well-established estimates of desistance rates, supports itself with evidence that is either invalid or irrelevant to its own recommendations. In addition, the AAP ignores the nuances of gender dysphoria that may predict desistance, and in doing so closes the door to treatment approaches that may benefit certain individuals more than gender affirmative care would. The fact that the AAP does not properly consider desistance so that they can unreservedly recommend gender-affirmative care is both medically and morally irresponsible.

Medical Transition Therapies

In addition to ignoring the relevant research about mental health and persistence/ desistance, the AAP's recommendation of gender affirmative medical therapies violates broadly accepted norms about medical care. The first, and most basic of these, is that the AAP endorses medical therapies that are not well studied, while barely mentioning the scarcity of evidence as to their benefit. Very little high quality evidence exists regarding long term outcomes for individuals who have been treated with puberty blockers, cross sex hormones, and/or sex reassignment surgeries. A 2010 meta-analysis of the outcomes of hormonal therapy and sex reassignment surgery found that the available evidence was "of very low quality due to the serious methodological limitations of included studies. Studies lacked bias protection measures such as randomization and control groups, and generally depended on self-report to ascertain the exposure [to the therapies]" (Hassan Murad, et al., 2010). With such a lack of quality studies, according to a working report from the APA, "the highest level of evidence available for the treatment of these children can best be characterized as expert opinion" (Byne, et al. 2011). However, the AAP's statement barely alludes to the lack of strong evidence supporting medical affirmation therapies, giving the misleading impression that they are proven to be much more effective than they actually are.

Considering the lack of rigorous scientific evidence regarding the medical treatment of TGD youth, certain basic norms should guide care. The first of these is that any approach to care should be guided by an understanding of the issue at hand. Yet the AAP attempts to address distress related to one's gender identity without fully acknowledging its causes. A reading of the DSM-V criteria for gender dysphoria reveals that there are several manifestations of gender dysphoria in children and adolescents, some, but not all of which must be present for a diagnosis. These can be grouped into two categories: a lack of identification with one's physical sex characteristics and a lack of identification with the roles, behaviors, and/ or treatment typical of one's sex. In effectively addressing the distress caused by gender-identity issues, these categories should be first distinguished from one another and then addressed appropriately with regard to accepted ethical and medical norms.

In the case of an individual's lack of identification with the roles, behaviors, and treatment of their sex, a provider's attitude can be guided primarily by the principle of autonomy. It is outside the scope of medical practice to change or challenge an individual's desire to dress or behave in a more feminine or more masculine way. With regard to this side of the issue, the AAP's attitude of support and affirmation may be beneficial. Parents and providers can help children to understand that sociocultural conventions regarding the masculine and feminine do not apply uniformly to everyone and in fact may change across time and cultures. It is not wrong for children to prefer playmates of the other sex, or to enjoy activities that are not typical of their sex.

The problem with the AAP's approach arises when it conflates this first category with the second. The AAP treats sex as merely another facet of gender expression, which is as mutable as an individual's clothes, hairstyle, or behavior. This is evidenced when it claims that sex is "an assignment that is made at birth" rather than an inherent biological characteristic of an organism. Yet a male who believes he is female (or vice versa) clearly holds a belief (or a desire) that is contrary to biological reality. The two logical options to resolve the issue are to either change the person's belief, or to change the physical reality. Gender affirmative care proposes the second option, dismissing the first as cruel and antiquated. But does this fit with the existing norms in medicine and medical ethics? When examined critically, it does not.

Typically in psychology, if a person's idea of their body does not correspond to the physical reality, the first action of a provider would be to address their beliefs rather than to medically change their body. For example, individuals with anorexia nervosa have a distorted image of their bodies, believing that they are overweight when in fact they are not. It would be considered unethical for a provider to assist an anorexic patient in losing weight via a gastric bypass surgery rather than providing them with psychotherapy to overcome the eating disorder. Another parallel to gender dysphoric individuals' dislike of their sex characteristics can be found in those with body dysmorphic disorder (BDD), who develop an intense dislike of certain perceived flaws in their body. In examining BDD, it has been found that cosmetic surgery to resolve the perceived defect only alleviated symptoms in 4-7% of individuals; in contrast, cognitive behavioral therapy (CBT) has been preliminarily shown to be beneficial in a majority of cases (American Psychiatric Association, 2013). It is unethical to provide an irreversible, relatively unstudied treatment that destroys the normal, healthy functioning

of the human body without exploring or at least presenting the option of other, less invasive alternatives (like CBT) that correspond much better to the psychological nature of the issue. Yet this is precisely what the AAP does when it presents medical affirmation therapies in a positive light while calling psychotherapeutic reparative approaches "inappropriate."

Conclusion

It is clear that the difficulties experienced by TGD youth are often very painful, and these individuals deserve compassion, respect, and care. The AAP, like many medical organizations, practitioners, and researchers, rightly seeks to support them in the most effective way possible. However, gender-affirmative care should not be recommended by the AAP on the basis of the current research regarding mental health comorbidities, persistence and desistance, and medical transition therapies. To properly address this issue, more rigorous research needs to be done, prioritizing the use of large sample sizes, control groups and pre/post designs to the greatest extent possible. In addition, clinicians should not be afraid to challenge children's perceptions in order to help them accept, rather than feel alienated from, their bodies. Families, health care practitioners, and educators need to be willing help youth to express their individual interests and feelings and seek care for their mental health issues while accepting their healthy bodies as they are.

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A SHOT IN THE DARK: CAN THE WAR ON DRUGS BE WON ON THE DARK WEB?

by WYNNE ROYER

After two years of relentless investigation, the FBI had caught him. All that time he had hidden under the alias the *Dread Pirate Roberts*. His real name is Ross Ulbricht and he was responsible for the first dark web cryptomarket “Silk Road”. Once caught, the FBI shut down the site and Ulbricht was sentenced to life in prison without parole (Jones & Lacson, 2016).

However, the story does not end there. In the weeks and months following, twenty drug marketplaces emerged on the dark web to take Silk Road’s place (EMCDDA, 2017). Ever since their arrival, law enforcement has employed strategies to identify, destabilize, and eradicate these networks inciting a virtual War on Drugs fought behind computer screens. Yet law enforcement shutdowns are ineffective at containing darknet drug markets and do not effectively address issues around drug safety. Therefore, instead of trying to eradicate these markets completely, law enforcement should focus on harm reduction by monitoring the dark web for high level concerns such as potential organized crime activities. In addition, law enforcement should involve nonprofits, physicians, and parents to expand upon existing harm reduction resources such as drug-checking services and online medical advice.

The dark web is an attractive place for the illicit drug trade primarily due to its anonymization features. When browsing on conventional search engines, one’s internet activity can be easily tracked and identified. In order to hide such activity from the prying eyes of governments, a wave of people are downloading encrypted software, the most common being the Onion Router (TOR) (Chertoff, 2017). The U.S. Naval Research Laboratory originally developed TOR to protect governmental communications and later made it free to download on their website (Chertoff, 2017). TOR conceals an individual’s IP address by routing it through many other computers within the TOR network. Each of these routes involves several layers of encryption obscuring the source and destination of an internet request (Nicol, 2016). Another key technology in the dark web enterprise is the use of cryptocurrencies, the most popular being Bitcoin. Bitcoin is a purely virtual currency, that can be traded directly from buyer to seller without going through a central bank (Ludwin, 2015). Overall, these anonymization features has made is very difficult to assign criminality.

In addition to protections from criminalization, many are buying drugs off the darknet due to the notable safety benefits it holds over buying drugs off the street. For one, buyers can purchase drugs directly from the comfort of their homes. Buyers peruse drug listings, make online transactions with Bitcoin, and then receive a package delivered straight to their doorstep (LeQuand et al., 2017). This whole process eliminates the interpersonal violence and other risks involved with a sketchy street deal (LeQuand et al., 2017). Similar to e-commerce sites like Amazon, buyers can leave reviews and ratings for vendors, which keeps vendors accountable to delivering high quality, pure products (Aldridge, Barratt, & Stevens, 2017). A study comparing the purity of cocaine bought online compared to that of drugs bought offline found that 70% of cocaine samples bought on the Dark Web were unadulterated compared to just 40% of the samples bought on the street (Caudevilla et al., 2016). This reduced risk of adulteration is another reason individuals are flocking towards cryptomarkets.

Despite these safety advantages, the dark web presents a number of concerns regarding future drug safety. Although the dark web currently represents a small share of the overall drug trade--predicted by the RAND corporation to generate only 0.01% of the monthly revenues of the offline drug trade--it is projected to grow substantially in coming years (RAND corporation, 2016). According

to the 2017 Global Drug survey, the number of U.K. citizens who reported buying drugs from the darknet increased 13% since 2014 (*Global Drug Survey*, 2017). With this growth in sales, there are worries that the dark web will facilitate problematic drug using behaviors. One study that interviewed dark web users about their drug habits before and after Silk Road 1.0, found that due to increased drug accessibility some individuals used with greater intensity than they had prior to Silk Road. One interviewee even stated that before Silk Road he “...never had connections to buy drugs in real life, and I still don’t, so [Silk Road] was literally my only means of getting drugs” (Allen, Barratt, Lenton & Maddox, 2016). Attracting new individuals to illegal drugs could increase the prevalence of drug using overall, making it pertinent for law enforcement and public health officials to address these concerns.

To combat these concerns, law enforcement has invested a lot of time and money in police takedowns, which involve hacking into drug cryptomarkets, arresting site administrators, and eventually taking the site offline. The philosophy behind this technique is that by dismantling these websites, dark web users will lose trust in the system and the popularity of these sites will decline (Bo, Mounteney, & Oteo, 2016). The problem with these operations is that, like other supply-side enforcements, they have had negligible effect on demand. Since the emergence of Silk Road, there have been three major police disruptions of the dark web: the takedown of Silk Road 1.0, Operation Onymous, and most recently Operations Bayonet, and GraveSac, which took down the Alphabay and Hansa markets (European Monitoring Center, 2017). Kyle Soska and Nicolas Christin, researchers at Carnegie Mellon University, measured the long-term impacts of these takedowns. They found that while police takedowns have a short-term effect on sales, market trends adapt quickly. For instance, they noted a pattern that immediately after each major disruption, cannabis sales spiked to 50% of market share, which would imply that buyers are nervous about these security breaches, considering that the trade of cannabis yields lesser criminal penalties compared to harder drugs (Christin & Soska, 2015).

However, Soska and Christin also found that, in the weeks that followed, sales reverted back to equilibrium with “...cannabis and MDMA making up 25% of sales” (Christin & Soska, 2015). Therefore, while these takedowns have a short term effect on demand, these marketplaces have proven resilient to law enforcement interventions over time. If the goal is to limit the proliferation of these markets, blanket shutdowns are ineffective as users will either move to existing sites, implement sites of their own, or revert back to the street drug trade.

Despite being unsuccessful at curbing dark web activity, law enforcement officials still champion police takedowns. At the internet and drugs conference in Brussels, officials stated that by seizing marketplaces, law enforcement can inspect the “...vendors, buyers, [and] substances available.” (European Commission: Directorate General and Home Affairs, 2016). While this information is undeniably useful for understanding darknet inventory, law enforcement could gain more nuanced insights by researching the darknet live. Many creative researchers have already advanced our understanding of buyer motivations and long-term market trends by utilizing large scale web crawls, running analyses with artificial intelligence, and interviewing darknet users directly on chat forums (Allen et al., 2016; Christin & Soska, 2015; Décarry-Héту & Giommoni, 2016). Additionally, police takedowns are often counterproductive to the goal of researching cryptomarkets and developing future law enforcement attacks. For instance, in March 2015 law enforcement identified a group of dark web users discussing darknet drug sales as well as dark web security developments on Reddit. As a result, the Department of Homeland security issued a summons to Reddit requesting the personal data of these users (Chertoff, 2015; Greenburg, 2015). In issuing this summons, law enforcement cued these users into police surveillance and discouraged open discussions of relevant user security techniques on publicly accessible forums, like Reddit. Had law enforcement not intervened, they could have used the valuable insights into dark web users technological developments to design (Chertoff, 2015).

On a larger scale, with each successive takedown, the police are exposing the security vulnerabilities of these sites. As a result, the dark web technologies resolve these security issues and evolve so rapidly that law enforcement cannot keep up. Dr. Eric Jardine, a political science professor at Virginia Tech, said in an interview that as each vulnerability gets patched up, the fear grows that the inventory of available law enforcement techniques will run dry (E. Jardine, personal communication, Oct 31, 2018). In the past, it was relatively simple for law enforcement to hack into TOR and capture IP addresses due to TOR’s public access. However, there has been an increase in individuals downloading wireless private networks, such as “Hyperboria”, which requires an invitation from a current user in

order to access it (Jones B., & Lacson, W., 2016). To make matters worse, TOR users have developed Bitcoin tumblers which introduce hundreds of dummy transactions into the sea of Bitcoin exchanges adding extra difficulty to policing capabilities (Bo, Mounteny, & Oteo, 2016). Rather than disincentivizing the use of drug cryptomarkets, police raids and the hacking of markets has led to security fortification, which increases the risk of the dark web becoming too dark that no one, including researchers and police alike, can study it and conduct future interventions.

In light of the challenges posed by persistent dark web drug sales and perpetual security fortification, law enforcement needs to reassess how they police the darknet. Instead of indiscriminately attacking all darknet users, law enforcement must refine existing tactics to prioritize and target high level vendors and buyers (Bingham & Buxton, 2015). In particular, law enforcement should monitor the emergence of organized crime groups who may use the dark web either as a way to distribute drugs in bulk, or purchase drug supplies and resell them offline (European Commission: Directorate General and Home Affairs, 2016). Although a majority of dark web vendors are individuals making less than 10,000 USD a year, there is mounting evidence that a small number of vendors are generating enormous sales volumes (Christin & Soska, 2015). In the same study conducted by Nicolas Christin and Kyle Soska, which measured the long term market trends of the dark web, researchers found that, “.the top 1% most successful vendors were responsible for 51.5% of all the volume transacted” (Christin & Soska, 2015). What’s more, at the Critical Issues in Policing conference, police officers noted how an increased number of organized crime groups are committing fraudulent money schemes and identity theft on the dark web to fuel offline violent activities (Police Executive Research Forum, 2018). Law enforcement increasingly needs to monitor organized crime activity on the dark web, in order to measure how it will impact cartel-related violence in the future.

While improving upon policing tactics will help to identify and address potential hazards, law enforcement interventions can only go so far. Health professionals, and parents also need to be educated and involved in reducing drug abuse harms. Interestingly enough, the dark web’s unique platform paves the way for many innovative harm reduction initiatives. Due to it’s anonymity and global nature, the dark web provides a judgement-free space for information sharing where drug users can discuss personal experiences. Several Europe-based non-profit organizations have taken advantage of these features and offered drug checking services and online medical advice. While these initiatives are still in their infancy, they have the potential to prevent drug overdoses. In order for these initiatives to reach more individuals, law enforcement and governmental agencies need to provide more funding and support so that these initiatives can generate a stronger research base in order to inspire evidence-based policies.

One such initiative is online drug-checking services where consumers can send in drugs they buy online for chemical testing to ensure that it matches their expectations. These services are a necessary addition to dark web review systems, which already exist as a pseudo-quality control measure by holding vendors accountable to providing high purity products (LeQuand et al., 2017). However, these review systems are imperfect by themselves because they are subject to manipulation by competing vendors and even if a consumer can leave a bad rating, that individual has already experienced the negative health effects (Aldridge, Barratt, & Stevens, 2017). This is where Energy Control, a Barcelona based drug-testing lab, comes into play. Energy Control was established in 2001 and primarily provides services at raves and other party venues (Barratt & et al., 2018). Their in-person programs have already resulted in 18% of their service users throwing away their drugs upon receiving the results (ibid). Starting in 2016, Energy Control extended their services internationally and began targeting cryptomarkets (F. Caudevilla, personal communication, December 6, 2018). Dark Web users can submit drugs anonymously and each drug test costs the Bitcoin equivalent of 50 euros (Cox, 2015). In addition to providing drug test results, Energy Control also gives their users links to peer-reviewed journal articles and reliable online information regarding safe doses and uses for a particular drug (Barratt & et al., 2018).

The importance of this service for drug safety cannot be overstated. Obviously, it can be very dangerous and unpleasant for people to take drugs they are unaware of. The current fentanyl epidemic should be evidence enough for this. Close to half of the overdose deaths in the United States in 2016 was fentanyl-related and this is due in part to heroin and cocaine users accidentally taking fentanyl-adulterated products (Compton, Einstein, & Jones, 2018). Drugs sourced on the Dark Web can be subject to this same adulteration, therefore users can harness drug checking services to reduce this risk. In addition to being an important utility for drug

users, drug checking services can be a critical health surveillance tool. Energy control is able to identify new psychoactive substances---chemical variants that mimic existing drugs---entering the online drug trade (Barratt, M.J., & et al., 2017). Once identifying a potentially hazardous substance, Energy Control alerts Law Enforcement and Public Health authorities who can catalyze clinical research to get a handle on that substance’s risk potential (Cox, 2015). Unfortunately, Spain is one of the few countries where drug checking services are legal and in these few countries where it is legal, these programs do not receive enough research funding. In order for other countries to start drug testing services of their own, there needs to be stronger evidence showing their efficacy. While these services are not perfect solutions, they offer a way to work with rather than against dark web drug users to assert quality control in a previously unregulated marketplace. Similar to drug-checking services, anonymous, online discussion forums offer another way to reach dark web users and to provide them with harm-reduction advice. For many users, cryptomarkets are not just a way to obtain illegal drugs, they represent a community where individuals can discuss their experiences without social stigma (Allen, Barratt, Lenton, & Maddox, 2016). Doctor Fernando Caudevilla, a Spanish family doctor, took advantage of these forums and started his own discussion thread in 2013 (Bo, Mounteny, & Oteo, 2016). Caudevilla holds threads on several cryptomarkets where he answers a variety of medical-related questions ranging from neurotoxicity to the long-term effects of drug use. Over the course of 22 months, his threads were accessed by 136,407 users (Bo, Mounteny, & Oteo, 2016). His services are popular because he answers questions objectively without judgement. This allows for users who are isolated from mainstream services to get some form of medical assistance. For instance, on his Silk Road 1.0 thread, a user shared the following experience:

“After several years of using...daily heroin I decided to quit this spring. I live in an Eastern Europe[an] country where detoxification programs are unavailable...After several weeks I managed to detox completely [of] methadone... I have pain in all my body...Will this be enough to quit these symptoms?” (Bo, Mounteny, & Oteo, 2016).

Although this individual is in need of direct medical attention, Caudevilla’s answers can still deliver helpful information and resources. Moreover, this individual’s inquiry shows that if drug users do not have access to appropriate services they may turn to the Dark Web for self treatment. Not only are these discussion forums an avenue for harm reduction, they also reveal user motivations. This information could be key in developing offline policies that could prevent dark web use in the first place.

Clearly, online forums even with Doctor Caudevilla’s contributions are not ideal. Forums could spread misinformed advice and exacerbate drug harms (Aldridge, Barratt, & Stevens, 2017). Also, Caudevilla could give more sound medical advice if he could meet the individual in person. However, the reality is that drug users in general feel uncomfortable going to their doctor about their drug problems. An Australian study cited that 80% of injecting drug users experienced discrimination by their health care providers (Brenner et al, 2017). This startling statistic should motivate researchers and health care providers to develop and implement programs to reduce prejudices and improve communication and treatment for the drug using population. Additionally, educating physicians about the dark web is paramount. Physicians should be aware that their patients could be sourcing illicit drugs and prescription medications through cryptomarkets. For instance, in a study profiling dark web users they found that a small proportion did not have health insurance and bought prescription medications online because they were less expensive (Cicero & Ellis, 2012). Physicians could help reduce the need for the dark web, by providing safer alternatives for affordable medications. By actively involving physicians in the dark web effort, law enforcement would address underlying causes of cryptomarket use such as limited health care access.

In addition to physicians, parents can also prevent new users from entering the dark web, namely their children. Ever since its inception, there have been concern about minors entering the Dark Web and rightfully so. Whether minors are going on to obtain a fake ID or some marijuana, they could be exposing themselves to violent threats, intense cyberbullying, or child pornography (Jardine, 2016). One method of prevention is to develop online parental controls that thwart access to the Dark Web. Internet Safe Education, a non-profit organization has developed “Family Zone” which flags hazardous applications, and notifies a parent immediately if TOR was downloaded (Family Zone Team, 2018). While tech-savvy kids, could theoretically circumvent this software or obtain drugs through other channels, the hope is that when a parent is notified about TOR usage, the notice will spark a conversation between themselves and their adolescents. Furthermore, community education classes should be coupled with parental controls. Earlier this year in Park

City, Utah, they have hosted a community seminar about the dangers of the dark web in light of a tragedy involving two thirteen year old brothers who overdosed on an opioid that they had purchased through a cryptomarket (Murray, 2018). Similar educational classes should be expanded to reach other communities so that similar tragedies do not occur in the future. While there may be no way to “card” minors on the dark web, the use of parental controls and educational resources is another tool that law enforcement should consider in fighting the darknet drug trade.

Even though Ross Ulbricht has been locked up for five years now, online drug cryptomarkets continue to declare an unrelenting battle against law enforcement agencies across the globe. To say that Ulbricht’s Silk Road threw another wrench in an already losing war against drugs would be a gross understatement. Silk Road completely transformed the illicit drug trade, anonymizing virtually every stage of a drug transaction from the initial sale, to the time it arrives at a buyer’s doorstep. While law enforcement and other combatants of cyber crime, have been able to break these anonymization barriers and take a few marketplaces offline, many always seem to pop up. This outcome should not come as a surprise. For decades now, law enforcement has targeted drug supply in pursuit of a “drug-free world” without balancing these enforcements with efforts to limit demand. In the hopes of instrumenting a change in course, law enforcement should take pause and not only focus on ways to improve upon and discover new technological and surveillance tools, but call on the powerful tools that already exist within their community and within themselves. Every physician, parent, and moment of human connection, even with an anonymous stranger online, ignites a beacon of light in what can seem like an endless swirl of darkness.

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SHADOWBOXING - THE NEUROLOGICAL IMPLICATIONS OF POST TRAUMATIC STRESS DISORDER

by SARAH VON HOENE

*"I have acid rain in my brain,
and it's killing the flowers in my heart."*

- Marianna Paige

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It was only her second time entering a police station. The first time, it had been easy. Her heart raced as she pulled open the door to the building, her sweaty hands struggling to grasp the metal door handle. The station's interior seemed darker and more intimidating than she remembered. This time, the woman at the front desk was much younger. Her nerves increased as she approached the glass blockade dividing her and the desk. She struggled to explain why she had come to the station, speaking quietly and unable to finish her sentences. Her boyfriend explained, and the secretary quickly nodded and gestured to a couch that looked so uncomfortable that one might rather sit on the floor. "I'll have someone out in a moment," the woman assured. The waiting was unbearable. She sat on the couch, cold, nervous, and uncomfortable. In an effort to ease her mind, she got up to look at cliché brochures on the wall, covering every topic from fire safety to how to register a new family pet. Time passed slowly. She wondered which door the detective would emerge from, glancing quickly between the four possible entrances. Would they be a man or a woman? She hoped for the latter. Even more, she wished she could walk back outside, bask in the warm sunshine, and drive home. A dark-haired man eventually appeared and she was ushered into a tiny room with drab beige walls, three chairs, and a small table. The detective pulled out a notebook and pen and began asking questions. He wanted to know what she could remember. What evidence did she have? She answered the best she could, hoping that by speaking out there would be a light at the end of what was an incredibly dark tunnel.

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According to the American Psychological Association (APA), trauma is simply defined as, "an emotional response to a terrible event like an accident, rape, or natural disaster" ("Trauma"). With such a general definition comes a plethora of possible traumatic events. Generally, the most common traumatic experiences involve combat, abuse, assault, or a loved one's death. In any situation where an individual's physical body, mind, or integrity feels dangerously threatened, there is a chance that the experience could result in trauma. While some types of trauma are discussed more openly than others, any traumatic event can leave lasting marks on an individual's mind, body, and overall life.

In severe cases, an individual who has experienced a traumatic event may develop Post Traumatic Stress Disorder (PTSD). The symptoms of PTSD often include flashbacks of the traumatic experience, depression, elevated responses (particularly when startled), and persistent anxiety. Unfortunately, these are just a handful of the many ways in which PTSD can seep into one's daily life. For those who suffer from PTSD, the intense mental and physical reactions to traumatic experiences of the past can become so engrained in their daily lives that it feels like they are no longer the same person they once were. Life feels different, and for many people with PTSD, their mind is consumed by a constant fear that something may trigger an unbelievably intense, painful, seemingly unstoppable reaction. The

fact that PTSD is not a visible health condition often makes it even more difficult to manage and treat. There is no way for friends or family to physically see the way a person's brain transforms after they've experienced a trauma. Regardless of what can be seen by the human eye, the impact of trauma certainly leads to circuit-level brain remodeling. The precise details of this process, however, yet to be completely understood.

Significant progress has been made towards understanding the effects of adverse experiences on the brain in the last 10 years. Thanks to advancements in technology, such as fMRI brain scanning, and the expansion of many scientific fields of study, researchers have been able to narrow in on the underlying processes at play when an individual experiences trauma. Specifically, there are three particular areas of scientific study that correspond with trauma research: Neurobiology, how an individual's behavior affects their emotional and mental state; neuroscience, the analysis of how mental processes occur within the brain; and developmental psychopathology, a study focused on the manner in which traumatic events affect the brain's development. It wasn't until the 20th century that these areas of study began to earn recognition as their own distinct disciplines rather than minute, amorphous parts of the general neuroscientific field. As they have developed into their own unique areas of expertise, neuroscientists have come to the conclusion that the human brain is ever changing, just like the majority of the human body. This concept, known as neuroplasticity, suggests that when the brain encounters a traumatic event, it undergoes changes that allow us to adapt and survive the situation.

Dr. Steven Maier, a distinguished professor at University of Colorado Boulder, has spent years studying the effects of stress on the brain, coping mechanisms, and resilience. When interviewed about traumatic stress research and recent findings, he brought to light an important fact: the research has only just begun. He also emphasized that many recent neuroscience findings are still very much up in the air. "After all, we've only had the tools to really study what goes on in the brain at a detailed level for a very small number of years," he stated. For example, the term neuroplasticity only become a psychology buzzword when scientists recently realized that the brain is capable of changing throughout adulthood, not only during childhood development. According to Dr. Maier, "in another three years, there'll be some new discovery that'll everyone will be talking about. There's still so much we don't know." However, there are a few safe conclusions that we can draw today. Primarily, "there certainly are changes that occur in the brain as a result of experiencing adverse events that affect the processes that underlie plasticity." However, an important question still remains: What exactly are those changes, and more importantly, how can individuals with PTSD recover from them?

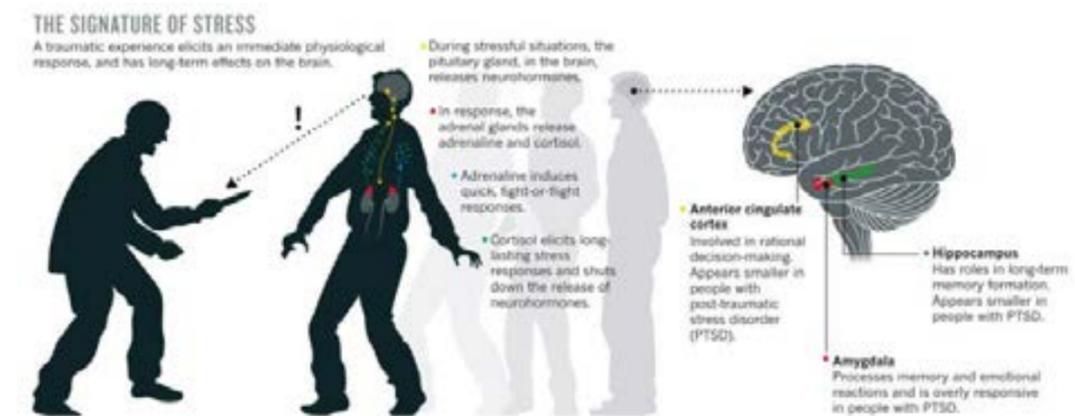


Figure 1: When an individual experiences a traumatic event, the brain reacts in a particular way. Brain scans have shown that for those with PTSD, certain brain regions have been re-wired in response to the trauma (ACEs Connection).

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veterans with PTSD who receive mindfulness-based exposure therapy (MBET) experience changes in their brains that indicate the rewiring of networks related to the perception of external threats (Wolkin).

To understand how these coping mechanisms and healing treatments are used in practice, I reached out to Dr. Shawna Roberts. As a practicing psychologist, Dr. Roberts is an expert in mindfulness-based cognitive therapy, cognitive behavioral therapy, and quite a few other forms of trauma treatment. She thoroughly explained the gradual shift in therapeutic treatments over time; from antidepressants to cognitive therapy to mindfulness therapy. “Medication doesn’t treat the problem, it just treats some symptoms,” she reaffirmed. She also explained the phasing out of cognitive therapy and the evolution of mindfulness therapy, a practice that supports the idea that the mind and body are a connected system. “We aren’t just floating heads,” she pointed out. Cognitive therapy is considered a “top-down approach,” meaning that it is an attempt to teach change by inputting information into the frontal lobe. The brain simply doesn’t work this way. Alternatively, mindfulness therapy is considered more of a “bottom-up” approach. This treatment addresses the mind’s wounds from the brain stem up, “a more psychoanalytic method,” Dr. Roberts stated. By emphasizing the connection between our minds and bodies, trauma can be addressed directly and the wounds can heal completely over time.

It had been months since the interview at the police station. She thought back to that day, shocked at how she felt like a different person now. Her life was still far from the “normal” one she’d known before, but there was no doubt that she was improving, slowly but surely. Therapy helped more than she initially expected. The panic attacks weren’t as frequent, nor was she triggered as easily as before. Some days were worse than others, but with time she was learning to express the pain, the frustration, the anger. Her mind and body were healing. Before all of this, the emotions had been buried. Her brain had protected her and hidden the trauma. Before all of this, she wouldn’t have gotten angry. She didn’t know how. But now, she was finding her voice. Day by day, she was learning to speak up. She was learning how to tell her story.

While some define PTSD as a mental disorder, it has become quite evident that it is simply a result of an altered brain state that evolves after a traumatic event. There is nothing disordered about having an understandable, natural reaction to obscenities that our minds aren’t capable of recognizing or processing. This reaction is certainly difficult to endure, but with advancements in technology and treatment, things are looking up for those with PTSD. Thanks to mindfulness therapy and a continually deepened understanding of how the brain functions under times of traumatic stress, the possibility of treatment and healing is far more attainable than it has ever been. With further research, an increased awareness of PTSD, and the continued practice of mindfulness therapy, we can give those around us who suffer from PTSD the best chance of recovery. In the words of Dr. Shawna Roberts, “You have to truly understand the science, then the treatment can become an art form. The brain can be re-wired, the body can heal, and you can learn to leave the trauma in the past.”

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ELON MUSK VOLATILE OR VILIFIED?

by JACK GEDDESS

Elon Musk is a superhero of sorts. It is nearly impossible to consider his technological achievements, intelligence, and public perception without making a comparison to Iron Man. He has creativity in abundance and uses his wealth to continually push forward society into the age of renewable energy, space travel, and artificial intelligence through products that are high in practical utility. With his many technological breakthroughs and high ambition for humanity, he envisions us as space-faring species not limited by terrestrial resources. And with such a vision, he has an absurd amount of drive to accomplish these goals. The American government and global economy seem to think so too, by investing billions of dollars into SpaceX and Tesla respectively in order to carry out his vision. But with so much investment into his efforts, society has created its own idealized version of Musk that doesn't precisely align with the man himself. It is easy to forget that Musk is a person with flaws and a unique personality, and when he behaves as such, social and mainstream media is quick to question whether he is responsible enough to hold so much power by categorizing him as attention-seeking and unstable. This public scrutiny of his actions holds so many preconceptions of an idealized version of himself without accepting the undesired traits he possesses. As he recently has been judged poorly for many trivial things by the powers that be, and his intentions are questioned, the drama shows the economy's critical scrutiny on a man who is starting to lose its trust.

Space Colonization and Philosophy

Beyond Elon Musk's ability to create technologically advanced prototypes and products, much of his public appeal comes from an optimistic philosophy in the goodness and power humanity possesses. This is evident in his unremitting belief that humans will terraform and colonize Mars. His ambitiousness and planning have already culminated in a timeline of landing unmanned ships on the planet in 2022, followed by a crew of people arriving in 2024¹. He has been adamant about overcoming the obvious logistical hurdles that stand in the way of this goal, namely creating rockets in his Falcon 9 SpaceX project which can be used for multiple launches for return trips². With incentives for lowering costs of launches aside through the use of reusable rockets, arguably, Musk is driven by a belief that pioneering space is only possible through the ability to make return trips back to earth, or presumably to other planets. In this belief lies an internalized philosophy that the destiny of the human race is to become an interplanetary species.

This idea is more precisely conveyed by the philosopher Dr. Roy Weatherford, operating under the assumption that human lives are endowed with value, and because of this, have an obligation to procreate as much as environmentally possible. Considering the constraints of living on earth in terms of finite land and resources, Weatherford argues, "it is humanity's number one global moral imperative to provide the educational and technological resources, as well as develop the overall mindset, for the advancement of space exploration and colonization"³. Weatherford and Musk are closely aligned in this mindset, and they are far from alone. Science fiction series like Star Trek and Futurama heavily rely on plots that involve travelling from planet to planet in their storylines, and new videogames like Eve Online present the idea of intergalactic resource trade aided by asteroid mining⁴. Indeed, much of science fiction operates under a hope that human space exploration is possible, and perhaps is likely in the future. Elon Musk simply thinks that the future is now.

Perhaps Musk perceives himself as a motivating factor in of the seemingly unlimited possibilities space exploration has to offer. Insurmountable barriers put up by scientists at NASA are unacceptable limits to the imagination Musk possesses. For example, most

experts argue that the terraformation and subsequent human habitation of Mars is not feasible because the atmosphere does not have the density of Earth's, and that there is not enough carbon dioxide on the planet to even attempt to create more density⁵. According to Musk via Twitter, "there's a massive amount of CO2 on Mars adsorbed into soil that'd be released upon heating. With enough energy via artificial or natural (sun) fusion, you can terraform almost any large, rocky body"⁵. To Musk, there are always solutions to problems that seem impossible to the vast majority of the population, and in this sentiment, his abundance of creative thinking is evident. So for many people, Musk is a hero for thinking and manifesting creative results, with his intelligence and drive propagating technological advancement.

Flamethrowers and Dadaism

Elon Musk is undoubtedly a man who attracts attention through his technological endeavors with SpaceX and Tesla. Increasingly however, his side projects and the social media discourse that surrounds them seem to redefine his character while jeopardizing the integrity of his businesses. His recent invention is "Not A Flamethrower" (named for legal purposes, but for all intents and purposes is a flamethrower). Musk manufactured 20,000 units, and despite personally telling people "it's a bad idea, don't buy it", all of the flamethrowers sold out in four days⁶.

Not A Flamethrower, and the company that produced it, The Boring Company, were conceived out of irrationality and nonsense, reminiscent of the dada art movement. The Boring Company itself is a reference to the movie *Spaceballs*, a Mel Brooks parody of Star Wars. In one scene, Yogurt (Yoda) explains that merchandising is "where the real money from the movie is made", and proceeds to show the protagonists Spaceball hats, t-shirts, dolls, and a flamethrower⁷. The Boring Company follows the same unpredictable trajectory, first by producing t-shirts and hats, followed by Not A Flamethrower, to digging tunnels under Los Angeles to alleviate traffic congestion... even the name of the company and product employ semantic opposites to conceal their true nature⁶. Indeed, Musk's statement telling people not to buy Not A Flamethrower is reminiscent of the Dadaist Tristan Tzara, "I speak only of myself since I do not wish to convince, I have no right to drag others into my river, I oblige no one to follow me and everybody practices his art in his own way"⁸. Musk's "attempt" at discouraging consumers from purchasing Not A Flamethrower reflects this sentiment, and wittingly draws attention to the product through reverse psychology. In Musk's own way, he uses his entrepreneur skills as a medium to create absurdity. And while the Boring Company art project takes on a life of its own, it has practical consequences for doing so.

His invention, while coming across as little more than the whim of a billionaire engineering genius "because it seemed fun", calls into question his motivation for what amounts to a publicity stunt. After all, Musk stated in an interview with Joe Rogan that he didn't do it to make a profit, and many people have cited the obvious risks and potential for Not A Flamethrower to be used as a weapon⁶. It seems that Musk either overlooked or ignored the potential dangers of the product in order to draw public attention to himself. Unlike Musk's other endeavors, Not A Flamethrower has little use to society but nonetheless has become sensationalized by the media, which is a confusing departure for a man hell-bent on evolving the technological capabilities of humanity. Perhaps the invention, while coming across as absurdity, is an attempt for Musk to convey his complex personality by reshaping the public perception that follows him and often wishes to categorize who he is. Perhaps he is not exactly the humanitarian he was once thought to be.

Personality and Public Perception

Recently, Musk has made the news for his antics more than his inventions. The media exposure, notably his retaliation to critics of his Thai cave rescue submarine, and a Tesla shareholder conference call telling concerned investors "should definitely not buy our stock" have raised questions about his business acumen and mental stability⁹. One interpretation of Musk's controversial media appearances is that he is selfish, lacking in empathy, and attention-seeking. The mainstream media now seems to think so; many recent articles have used these examples as evidence that he is an unstable narcissist who is unfit to run his companies, especially SpaceX and Tesla. Diagnostically speaking, the narcissist label is a gross oversimplification of Musk (his behaviors might meet two or three of the possible nine symptoms), yet his actions expose a man with a complicated personality¹⁰. From the perspective of the big five personality

traits theory, it appears that Musk is an introverted man very low in agreeableness, much like Steve Jobs of Apple. These traits partially explain some of the more undesirable behaviors Musk has recently engaged in: he comes across as self-centered, difficult to work with, and elitist. Musk also seems to fall high in the spectrums of conscientiousness and openness to experience as well based on his work ethic and constant innovation. Taking all of these traits into consideration, it is conceivable that he holds abnormally high standards for himself and his work. It seems that he believes in his capabilities, and would like other people to trust him based on his phenomenal track record. To many, this comes across as hubris, and much of the mainstream media and shareholders in his companies see this behavior as volatile. Musk is so valuable to the future of travel that many believe he cannot be trusted with creating it on his own terms, and should step out of the business side of his companies to focus on research and development. Undoubtedly Musk is a role model to so many people that not acting a such is a call for concern, and potential change.

There is undeniably a side of him that is responsible and focused on humanities problems. His desire to help people is evident in his podcast with Joe Rogan: “I think people should be nicer to each other, and give more credit to others”. He also said that helping others is what motivates him to be so productive in the interview⁶. Perhaps in the case of the cave submarine, Musk really was motivated out of compassion and tried to help in the only way he knew how, not some self-serving, attention hogging ploy. But when he is confronted on his intentions and methods he loses patience, which is more frequently occurring . Musk is an exceptional person with seemingly supernatural powers, but he is human with flaws after all. People who have stake in his enterprises seem to forget that however, and his mistakes are magnified to extreme proportions.

Whatever Elon does, he will be judged. Every achievement, every mistake; each action redefines the man. And there are growing pains that are inevitable with such a publicized life that is evolving as much as Musk’s innovation, most notably coming from people who have business interest in him. The mainstream media is quick to form a misconception that Musk is going off the rails and is unfit to run his companies, using evidence from his Twitter feed to do so. However, there are still many people who believe in Musk and his desire to help humanity. Just scrolling through the comments on Reddit and the Joe Rogan Experience podcast there seems to be a consensus that most accept his bizarreness with his genius, and wish for him to keep doing what he thinks is best. So in many respects the recent undesirable media attention he has received for having a personality is a gross oversimplification and should be taken with a grain of salt. Because Musk is complicated, but his intentions are good.

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A FAIR LOOK AT EMINEM THROUGH REVIVAL

by JOHN BELLIPANNI

After what felt to fans like ages of rumor and speculation comes the long-anticipated release of Eminem's new album. *Revival* comes roughly four years after his last full album *The Marshall Mathers LP 2* (Weiss). In honesty, this isn't out of character for the rap superstar who took more than five years to release his chart-topping *Relapse* (Weiss). But as the title itself suggests, even Mathers recognizes *Revival* as a true awakening from dormancy.

Was the decision to release another album even appropriate? Surely, this is a question Mathers thought long and hard about. At the ripe age of forty-five, Eminem might be the oldest person who still listens to Eminem. It's difficult not to wonder if the album drops as a legitimate expression of original artwork or one last desperate plea for attention. *Revival* itself teeters back and forth between Mathers' capacity for talent and his reckless struggle to stay in the limelight.

Tracks like "Walk on Water" weigh heavily on the former. Mathers recruits Beyoncé in what might be the song from *Revival* that stands the test of time. The chorus is smooth and melodic, with a somber undertone colored by a soft piano progression. During the verse, Mathers brags about his success, but not in a fun "Rap God" sort of way. Rather, he explains his achievement as some type of critical damnation (*Water*). Head on, he confronts the subject fans have been asking for years: How long can Eminem keep up with his erstwhile self? By his own rare admission, *Revival* is a shout of frustration muffled in the echo chamber of Mathers' former genius.

"Walk on Water" embodies the classic Eminem archetype, but it's not the only song on *Revival* that harks back to Mathers' glory days. "Heat" is riddled with the crude puns and poignant figurative language that embody everything that makes Eminem a guilty pleasure. There is no denying the brilliance in lines such as, "I'm stiff as a statue, you sat on a shelf/I feel like I'm a bust, maybe I'm just ahead of myself" (*Heat*). Who else is writing lyrics like these? Lil Pump and Kodak Black? I don't think so. Rolling Stone's Christopher Weingarten likens Mathers language "the type of convoluted double entendres that would make AC/DC feel like underachievers" (Weingarten). Maybe it's unfair to put so much weight on the lyrics, but we're not listening to Eminem for the instrumentals.

It doesn't take an expert to recognize that Eminem's lyrics are still sharp and succinct. But, analysis of *Revival* is contingent on more than Mathers' rhythmic ability: it's contingent on his content. Eminem released the album in the midst of a period defined by political controversy. This seems like an environment he would thrive in. ABC's Al Mancini calls him "the most controversial musician of the new millennium" (Mancini). So, what's the harm in providing some commentary in the era of Trump?

Here's the harm: Mathers has spent most of his professional career catapulting from argument to argument, depositing his two cents wherever he can jamb them. And this tactic helped him forge a national platform from which he could share his opinion (Matson). The problem with "Like Home" and "Nowhere Fast" is that Eminem's opinion falls flat: it gets lost in the white noise of hatred for Trump like an overplayed episode of SNL. Lyrics include, "Didn't wanna piss your base off, did ya?/Can't denounce the Klan, 'cause they play golf with ya" (*Like Home*). It's not like this lyric isn't creative, it is. The issue lies in the rhetoric. Whether or not listeners agree, they are probably familiar with the argument that Trump is a racist and he golfs too much. Why? Because we hear it fifty times a day from fifty different sources. Eminem used to be the embodiment of Freud's id, proudly professing what most people were too reticent to admit (VH1). "Like Home" just reverberates what half of America has been saying for years.

This dichotomy poses a challenge for Mathers that isn't resolved particularly well in his new album. Audiences used to be able to listen to cringe-worthy lines and make a distinction between the lyricist and the person. It was easy to tell: Eminem is a character. In *Revival*, that is no longer the case because the album blurs the line between Eminem the entertainer and Eminem the activist.

Mathers' banality in content seems to linger beyond "Like Home" and "Untouchable", sneaking into his personal anecdotes too. "Bad Husband" and "River" are both masterpieces in many ways, but doesn't something about them seem a little... familiar? Yeah, it's the content. "Bad Husband" acts as an extended apology to the rapper's ex-wife Kim Mathers. Isn't anyone else tired of this narrative? I feel like the Sam Gamgee of Eminem's eighteen-year emotional odyssey through heartbreak. I was roped into it on *The Marshall Mathers LP* in 2000 with "Kim" and "'97 Bonnie and Clyde," then caught up in "Mockingbird" and "When I'm Gone," and again with "Space Bound" and "Going Through Changes," then in "Stronger than I was." And this is far from an exhaustive list. Both "Bad Husband" and "River" have a lot of merit individually, but after nearly two decades, they land like the fifth movie in the Transformers sequence: overdone.

"Tragic Endings" is a different song with the some of the same crippling issues. Describing an unhealthy relationship, the narrator struggles to find peace in the midst of abuse. Sound familiar? It's because it is the exact plot of "Love the Way You Lie," the 2010 *Recovery* track featuring Rihanna (Dinh). "Tragic Endings" enlists Skylar Grey, whose voice reminds me a lot of Rhianna's. But if that's not enough correlation, "Love the Way You Lie" was also written by Grey. Oh, and the beat was ripped directly from "Cinderella Man." AllMusic's Stephen Thomas Erlewine notes, "Eminem [can]not resist recycling templates for "Stan" and "Love the Way You Lie" (Erlewine). These grounds alone are not necessarily conducive to "Tragic Endings" being a flop. But here's the truth of it: "Love the Way You Lie" is better (VH1). Mathers' writing is sloppy on "Tragic Endings." His rhyme scheme is difficult to track, and his syllabic patterns sound unnatural and awkward. Outdoing an old song can be a tool well-utilized. But Eminem actually needed to outdo himself. And he fell short.

Regardless of Mathers' true intentions, *Revival* is an album with a lot of musical integrity. The messages are thoughtful, the melodies are focused, the vocals are emotional, and the lyrics are cunning. But as Mathers admits in track one, he is being held to a higher standard than Drake, and Macklemore, and Chance the Rapper. He's being held to the standard of his own former success. And in this fact lies the catalyst for the album's deficiencies. Mathers felt pressured to produce an LP with the same poise as his preceding albums, so he employed the same tactics. Even Weingarten's largely complementary review admits, "Eminem mainly falls back on old tricks" (Weingarten). This is why, for better or for worse, *Revival's* legacy will be tethered largely to a mood of familiarity at the cost of boring its listeners.

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