

ALTERNATE REALITY GAMES (ARGs) AS A LENS OF PARTICIPATORY LEARNING
AND EXPOSURE TO ENVIRONMENTAL RACISM IN THE UNITED STATES.

by

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ABSTRACT

ALABI MORA, FOTIUSHANG NIKOL. Alternate Reality Games (ARGs) as a Lens of Participatory Learning and Exposure to Environmental Racism in the United States.
(Under the direction of DR. CRYSTAL EDDINS)

Contemporary educational models emphasize educators employ tools to increase engagement and collaborative thinking in student learning. Alternate Reality Games (ARGs) have recently been found to have great potential for language immersion and cultural education. Researchers have hypothesized that it could also be used in social justice education. This project creates a hybrid Alternative Reality Game based loosely on a smallpox epidemic and uses it as a tool to expose students to concepts surrounding environmental justice and environmental racism in the United States. Quantitative data collected in this study focuses on if participants in the ARG experience significant changes in their understanding of the prevalence and effects of environmental racism on various marginalized communities. Conceptual understandings of EJ were found to be improved though any effect on personal philosophy and willingness to incorporate findings were unclear. Future directions of data collection and possible expansion of the game universe are discussed.

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DEDICATION

Our work is dedicated to agents of Environmental Justice everywhere. May all voiceless people
find themselves soon unfettered.

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LIST OF ABBREVIATIONS

ARGs	Alternate Reality Games
BIPOC	Black, Indigenous, People of Color
EJ	Environmental Justice
ER	Environmental Racism
GVP	Global Village Playground
JBS	Justice Based Storytelling
POC	People of color
SES	Socioeconomic status

CHAPTER 1: INTRODUCTION

Origins of the Environmental Justice Movement

In August of 1978, a trucking company dumped over 30,000 gallons of known carcinogenic waste along 270 miles of road in Warren County, North Carolina. Warren County was the poorest county in North Carolina with about 60 percent of its population African American. The citizens of Warren County organized to challenge the landfill. Their opposition at first civil; meetings with local government officials and lawsuits and later escalating to protests, direct action and mass arrests. The demonstrators in Warren County brought the tactics, lenses and rhetorics employed by the Civil Rights Movement of the 1960s to an environmental crisis. In doing so, created the Environmental Justice movement [9,10] The principles of Environmental Justice have broadened beyond conservation and preservation of natural resources. Current research and historical events have shown that communities of color are often faced with a disproportionate amount of environmental risks and hazards. These hazards can manifest in many ways, oil spills, landfills, industrial air and water pollution. This phenomenon is known as ‘Environmental Racism’. Environmental Justice can be understood as the response to Environmental Racism [21].

In line with the origins of the movement, EJ education is typically conducted via experiential means. Young learners are taught the history of the movement, why it disproportionately affects BIPOC communities and what justice based solutions exist. Then, they are sent to communities

to further learn what challenges the populace faces, solidify their understanding, develop community organizing, advocacy and leadership skills. In the vein of exploration and improving educational and practical methods of environmental justice education. It is crucial to examine the educational potential that participatory learning offers and how it can lend itself to a justice based perspective. [4,11,16,18]

Emergent roles of Alternative Reality Games in media and modern industries

Now in 2022, The media as well as an immense amount of technological advances (especially through our phones) has become an inseparable part of our lives. As the mainstream media shines more light on fantasy or escapism content, we cannot ignore the potential it has in being a learning opportunity besides providing entertainment, and being a creative outlet. Fields like medicine have already co-opted scenario-based questions in their interviews and curriculum, however, they only look into the real-world based scenarios. For example, in a study performed by Álvarez-Nieto et al. (2022) there was a clear positive relationship between scenario-based learning and nursing students' attitudes and awareness towards sustainability. Overall, the scenario-based learning experience allowed students to make stronger connections to the topic of climate change and sustainability and apply the knowledge to their own experiences and field [3]. Scenario-based learning is also used in a plethora of social science subjects, although students from the start are more cautious of their responses and their implications as they know that there would be a correlation between the scenario and prevalent social subjects so they might alter their responses in a way to avoid judgment. We hope that by creating a different yet similar world for the experience, the participants will go with their gut-reaction responses to the

experience so our data is free from as much bias as possible. We will create an ARG, a popular immersive experience on a centralized platform, and gauge its usefulness in exposure and measurement of participants' interest and knowledge on the topic. [12,26]

With the aforementioned identification of the challenges associated with environmental justice education as well as understanding the effects of escapism and game-based learning on raising awareness on socially pertinent issues. Our Capstone project intends to answer several questions.

Research and Inquiry Questions

Can ARG's as a scenario-based experience be used as a tool for raising awareness or continuing a conversation on socially pertinent topics? Do ARGs have the power to interest people in subjects relevant to the real world even as a means to "escape" from mundane/real-world media?

Does using ARG's versus other educational tools as a means of social justice education lend participants towards a higher degree of solution synthesis or situation analysis?

How can escapism content be used to create spaces in which readers' biases or views are highlighted and encourage them to reflect or build on them without making them feel uncomfortable?

CHAPTER 2: LITERATURE REVIEW

In our literature review, we will first consider what environmental justice is, evidence supporting its disproportionate effect on Black Americans. Then, we will highlight existing and proposed methods of environmental justice education. In addition to that, we will address the burgeoning use of Alternative Reality Games for educational purposes. Especially in language and cultural education. We will also conduct a review identifying potential roles Alternative Reality Games has in increasing awareness of socially pertinent issues with a focus on Environmental Justice, we will examine the role of digital storytelling in empowering people's experiences and expectations of racial inequalities and upholders of institutional racism.

Environmental Injustice and who it affects

A plethora of environmental injustices plagues the United States, anything from lead poisoning that stemmed from a shift in water supply for Flint, Michigan; nuclear waste disposal conflicts in Sierra Blanca, Texas to cancer-causing toxins shortening the lives of residents in Cancer Alley, Louisiana [1,9].

These are only a few examples of cases told through the lens of environmental injustice. This phenomenon is typically understood through the lens of differing exposure of low income, minority communities to environmental risks that typically occur at the local and regional scale. With this in mind, much of environmental justice (EJ) research is based on issues of risk distribution, in other words, centered around who is burdened by environmental determinants and those with access to environmental resources. Other literature is concerned with EJ considerations of equity and equality, measures of environmental management, corrective action and decision making [7,9,10,14]

Like many social injustices, environmental injustice disproportionately affects low income communities and communities of color. Racism can manifest in a myriad of ways, through stereotypes, prejudice, violence or discrimination. The level of racism most relevant in this literature review is structural racism. Structural racism refers to policies and practices that legitimize interpersonal and internalized racist ideals. Environmental racism (ER) is a type of structural racism that creates differential access to goods, services and opportunities based on racial identity. [21,32,36]. ER is reinforced by government, legal, economic and military institutions and enforces infrastructural violence; violence caused by infrastructures determining access to and quality of resources [21,22].

Environmental racism itself is a main driving force in several racial health disparities [23,25]. Health disparities relevant to ER include asthma, cancer and chemical pollutants which in turn corresponds to an unequal exposure to pollutants, toxins and carcinogens [23]

Now more than ever before EJ has increasingly been integrated into conceptual frameworks and used as a lens to understand legacies of inequality. The interdisciplinary field of sustainability in particular, is ideally suited to consolidate issues of EJ and other socially pertinent issues of justice generally. For example, materializing attention to climate change has emphasized EJ related concerns including rising sea levels and their impact on small island territories, agricultural effect for indigenous communities related to a warmer climate. In spite of the growing emphasis on the need to integrate EJ and sustainability scholarship [22,28,29]. A large aspect of sustainability efforts and scholarship remains focused on conservation-based ecology ideas that lack recognition of the socioeconomic, injustice and equity underpinnings. [28,34,32]. In spite of some pushback, there has still been significant progress in utilizing a systematic approach to study sustainability issues. Social science theory employs “ecological modernization theory” that is underpinned by a framework for analyzing the institutional changes necessary to reduce human impacts on our environmental systems or natural resources [3,14,29,30] In addition to academic inquiry and scholarship, place based sustainability work demands interdisciplinary approaches between academics and community stakeholders who have a more refined perspective on the manifestations of environmental injustice in their communities. Without considering community stakeholders and EJ in sustainability planning and practice, there is a high chance of perpetuating existing inequalities, exacerbating existing injustices and/or creating new injustices within communities [30,31,32]

Existing and Proposed methods of Environmental Justice Education

That the physical environment cannot be separated from socio-cultural and historical elements is a recent phenomenon for new students. When asked to consider the fact that there is a disproportionate impact of environmental risk in communities of color. Conceptions of the ‘environment’ as the “great outdoors” that is, a space free from human habitation and used mainly for recreational purposes needs to be reevaluated. EJ literacy requires understanding that the environment includes places where we work, play and live [31]

With this goal in mind , EJ education should aid children in understanding early and clearly what role external stimuli play in their health and more importantly, what specific environmental hazards exist in specific communities. It should focus on the identification and dismantling of institutionalized policy and prejudices that perpetuate and validate ER. In communicating these challenges, educators should take care to empower those who are most affected by ER and ensure not to continue perpetrating existing stereotypes or create new injustices.

Then students should confront the ways that their initial conceptualization of the “environment” are based in privilege and erasure of both environmental racism and the people it affects [16,21]. Studies involving EJ education stress eco anxiety and guilt as emotional responses that educators need to better comprehend to maximize the effectiveness of their teaching [11]. Some anxiety can be adaptive and lead to transformative action. [18]. While others are crippling and encourage wilful ignorance [31]. It is a challenging task to communicate the enormity and complexities of EJ and ER without eco-anxiety overwhelming the central message. Institutions and organizations can make protocols for sharing information about coping with eco-anxiety. Support structures

can also be built for educators and students. Peer support groups have been initiated with some success [16,38]. Continuing education can be provided for teachers and other educators regarding emotions associated with ecological skills and EJ [38].

Gamification and Alternative Reality Games

Gamification is a newly developing area of academic research. It first appeared in 2008 and has been frequently used after 2012 [4,12,27]. As an emerging research area, synthesis of gamification theories are still occurring. In several sectors such as business, education, military and public service, gamification is being regarded as a highly effective means of reinforcing participant engagement and drive and improving productivity.

Gamification can be oversimplified into two major components: using game elements and game design techniques and non game contexts. Game elements and game design techniques constitute the elements of building a gamelike system. While the term “nongame contexts” broadly refers to the objectives intended to be achieved by using gamification theories and designs [17,35,37].

By using this multifaceted lens, gamification is not merely the game itself, rather its techniques, layout, aesthetics and the thought process it encourages its players to employ in order to navigate the game. The use of gamification methods can bring benefits to many non game industries.

Gamification can make people more motivated and willing to engage in the target activity and are able to develop friendly competition with other players [26,37]. Furthermore, gamification also creates a space for social collaboration and interaction [24,25]. It has also been shown to increase students' self efficiency in the context of educational advancement [19,24,26]. These

positive indicators have warranted deeper study into the adaptation of gamification techniques specifically for educational means.

Though gamification contains all kinds of game types including traditional board games to the latest Virtual reality games. Existing literature focuses on one type of gamification known as Alternate Reality Games or ARG's in the educational context. There is evidence to support that exchange and international students experience a higher cross cultural adaptation to tertiary education when ARG's were used [20,27].

Alternate Reality Games (ARG) is a new game format which takes place dually: online and the real world. It merges narratives and puzzles to develop a collective community [5,12] and uses the real world as a gaming platform. Players typically utilize multimedia tools to understand the storyline of the game and complete the puzzles and quests. It includes four overarching themes: an ongoing storyline, using multimedia types, providing a collaborative environment and creating a synergetic environment [19]. The most popular ARG structure includes the game design crew, the "Puppet Master" and the learning player [17]. The learning players follow the clues and cues to understand the storyline and solve the puzzles, the game design crew builds the game world and storyline while the Puppet Master acts as the game community leader but does not actually participate in the quest or game play. Puppet Masters mostly offer technical support and guidance for players. [17]. This structure is vital because it allows the game to be improved in real time and the storyline can be adapted to the choices that have been made.

Alternative Reality Games in an educational context

There is ample evidence on the utilization of ARGs in the educational context. By drawing on its interactive features, ARG's are effective for peer learning and socially oriented study. There have also been studies comparing ARG's to traditional computer games. It has been suggested that there is one advantage for the ARG compared to other computer games: the player acts as themselves rather than another character. This makes adapting gameplay into real life contexts much easier for players. More specifically, concerning educational contexts, eight overarching instructional benefits have been outlined throughout existing literature [2,5,6,12,13]

- 1). ARG's facilitate situational problem solving skills
- 2). Measurable and consistent progress
- 3). By employing a storytelling format that includes characters, plot and story; interest is stimulated, engagement is increased
- 4.) Since ARG's is a decision influenced reality; players have the opportunity to significantly change the outcome of the game
- 5.) Consistent presentation of problems and puzzles allows the game to be modified as needed and is instrumental in player reflection

6) ARGs allow for a large number of people to be involved in the game without much action.

More people means a larger community.

7) Since ARGs are based on relatively simple, existing technologies, they do not require the high-end inputs and technical expertise required to make commercial games.

8) Because its features allow for a Puppet Master and customization it is easily altered to accommodate a different “reality” or storyline more age or community appropriate.

Alternative Reality Games in language learning and cultural education

A specific area of education that draws researchers’ attention is language learning and cultural education. An immersive learning environment such as an ARG can motivate students’ language accretion. [25,26]. Since language learning is a medium of encouraging a culture system, advantages conferred by ARGs also show potential for cultural learning. [27,29,30].

Connolly et al. 's (2011) research focuses on secondary school students in the European Union using an ARG as means to motivate them to learn a second language. A popular ARG named “The tower of Babel” was created to improve those students’ foreign language skills. In the gameplay, to save the entire world from cultural genocide, students needed to confer information to a mysterious intelligence organization in the game. The puzzles and clues are presented in

various European languages and employ a large number of historical and cultural knowledge of countries in Europe. Tower of Babel received overwhelmingly positive feedback from students and language educators alike and was viewed as largely successful [19,20,24,27]

In a similar vein, Dondlinger and Wilson (2012) conducted research studying the results of an conducted a research project to examine the result of integrated learning experience in Southwestern United States college students. A course system that was named the Global Village Playground or GVP was created to aid students in obtaining better learning outcomes from the existing general curriculum. [19]

The GVP aims were to enhance students' perspectives on social relationship, it lasted for 16 weeks and was delivered to students via four major subjects: speech, literature, arts and humanities, writing and composition. Participants reported that through the use of GVP courses a myriad of skills have been fostered including multifaceted thinking, values of personal responsibility and ethical behavior [19]. In addition to the achievements the project has made, the authors point to the limitations of existing research in the role that ARG's play in enhancing socio-cultural education needs to have a greater focus on student's individual perspective in future studies [19]

Alternative Reality Games as a tool for environmental justice

We have found very limited research on Alternative Reality Games being used as a tool for social justice education. Game designers and players typically come impressed by their own

unconscious bias and prejudice that should be acknowledged and dismantled. We are currently extrapolating research suggesting that using ARGs is an effective tool for language learning and cultural education can be applied in a similar fashion for Environmental Justice.

Empowering people, digital storytelling and character development

Digital storytelling is a participative approach to narrate stories. Using co-operative methodologies in research offers principal investigators and researchers (most specifically researchers of color the opportunity to defy power imbalances between researchers and research participants not only in ways that benefit researchers and research participants but utilizes it to promote social justice, change, equity and livable development. More importantly, participatory storytelling has become a means for feminist and womanist researchers to undermine unequal power relations by managing and administering research that includes and honors the experiences of women and provides people who identify as women with the ability to choose how to represent their experiences and stories.

Storytelling in whatever form is a time honored method in which people in cultures across the world can gain understanding of themselves and their lives. [45,47] Storytelling has been used for time immemorial to foster a sense of solidarity and community between peoples who have similar experiences and stories. [30,32,33]. It provides a space where members of a community

are able to unpack their experiences, traumas and strategize about the courses of action available to them. [49,50]

Digital storytelling takes the societal practice of storytelling and converts it to a research method. The fabrication of digital use and ensuing use of finished stories to raise a higher amount of awareness of research topics and communicate the perspectives of the research participants as well as demonstrate the potential for social change. [46,47,49]

Digital storytelling can have an empowering effect on those involved in constructing a story supporting personal assessments, growth and the evolution of new literacies [37,39,48,49,50]. It can also underwrite collective action and assemblage of groups to advance issues important to them. This form of storytelling is uniquely placed to educate and raise awareness among viewers about issues presented in the stories [40,50]. It can also inform public policy and advocacy. [40,43,47,49] For researchers, using digital technologies can assist in the fields of qualitative research, innovation and collaborative approaches and engagement. [48,49]

Using digital media to tell stories can widen the understanding of researchers and research participants' comprehension of issues doing so in part, by transforming how researchers collect, record and analyze data. By giving privilege to the voices mostly affected, all parties involved in the research can be amplified [54,56,57].

Multiple ethical considerations arise during the process for developing characters, collaborative and digital storytelling. While the aim of the storytelling is to illuminate stories and perspectives of disenfranchised peoples. Sometimes storytellers or facilitators shape the narrative or inject

their opinions into the rhetoric, old stereotypes and prejudices may be reinforced. Ensuring that justice and equity centered stories are told and the autonomy of participants, research subjects and the subject of the story. Well meaning interventions can inadvertently further marginalizations of communities.[55,56,57]

Existing literature has demonstrated that it is the obligation of the researcher to predict the direct and indirect consequences of participatory projects as well as to alleviate the negative effects of such consequences through activities that are ethical [60,61,63].

Gaps in existing literature and how our research attempts to address it

As mentioned earlier in this literature review, there has been a growing interest in the need to integrate EJ and sustainability but empirical research continues to focus on deep ecology and conservation based education that ignores socio-economic contexts, justice and equity issues. The model of sustainability most focused on is an environmental, economics and social lens. [52,63,64] Early literature on this triad model is heavily criticized for ignoring the social pillar relative to environmental and economic dimensions. It is ignored, in part, because it is challenging to engage and discern in practice. Equity is particularly under-researched and ignored. It is important to note that many disciplinary experts have called for the expansion of the sustainability models to include other sociological elements. For example, incorporating “culture” is typically referenced as a necessary addition. [60,62,64] There is some debate as to what aspects of “culture” are relevant to the model and to what extent it should be integrated. [35,55,57,59]

The lack of attention to justice-focused elements of sustainability and environmental education is particularly glaring in sustainability education programs. At the University of Vermont, research into sustainability focused courses found that through many disciplines that address sustainability, issues concerning EJ were only addressed in 17% of courses offered in science, technology, engineering and mathematics. [45,49,52,64]

In the same vein, natural science degree programs throughout the United States typically serve lower proportions of underrepresented students and students of color [60-64]. The two issues of a hoarded presentation of sustainability and low diversity of students in sustainability-oriented programs are much intertwined. Considering how and where sustainability is presented to students in tertiary institutions and which students (read: students who identify as BIPOC) are empowered and exposed to sustainability coursework greatly determines whether the parties might continue to uphold narrow conceptions of the environment as “the great outdoors”.

In an effort to fight those who continue to define environmentalism and what it means by an environmental activist, those definitions do not represent the multi dimensional nature of “sustainability” and “environmentalism” or convey its relevance to people of all backgrounds.

Initiatives to increase awareness, majors, minors and other educational opportunities if not critically evaluated and approached with an equity/sociocultural centered lens may inadvertently contribute to existing prejudice, institutionalize inequality with engagement with “environmentalism” and disempower the people most disenfranchised.[54,63]

In that line of thought, researchers focus on the ideas of “just sustainability”. Scholars emphasize that just sustainability emphasizes justice and explicitly links environmental justice and sustainability. [60,62,64]

Definitions of environmental justice center on the idea that all people deserve to live in and enjoy a clean, healthy environment and the field uses injustice as a motivating factor.

Environmental Justice and just sustainability encloses both concepts of equity and equality.

Equity can be defined as the ability for all individuals to access the resources they need to live thriving lives and equality being defined as equal rights. Embracing “just sustainability” and manifesting it may be a step towards diversifying the voices in sustainability. This is not to be confused with an attempt to replace or substitute environmental justice but rather an expansion on “original” sustainability practices that aligns itself more closely with environmental justice and equity centered perspectives.

So as not to continue to disempower people and perpetrate existing injustices, we now turn to a conceptual framework of education and social justice called “justice based storytelling”.

The phrase appears a few times but with no deeper explanation to its meaning or how it might be applied [50,60,63,64]. To this end, we are reviewing literature centered around justice and how stories are told and understood. Narratives are used colloquially but for our understanding, we will focus on understanding narratives as myths and mindsets that both shape and encompass our beliefs and values. A principal/master narrative are the macroscopical ones operating at the societal level. They often shape mores and what society deems as ‘normal’ and ‘acceptable’.

Most of them are destructive: “material things will help you feel more accomplished”, “immigrants are here to steal your jobs”, “black women are lazy and leeching of the system”, “without fossil fuels and their employment opportunities the economy will crumble”, “climate change can still be reversed by changing to renewable energy sources”. . Because like almost all narratives, master narratives are not neutral, they always “pick sides” and whatever community

they condemn faces real world consequences. Master narratives because of their widespread nature and called in to justify treatment of people in vulnerable situations, They can significantly shape what and how much some get to have experience in life, some fear based narratives can even become laws. A lot of social justice movements have focused on undermining and interrogating harmful narratives.

Narratives often bleed into our stories and stories are a widely used method of seeing the world. We can see the story as a series of events that happened and the “meaning” we take away from that story is highly individualized. Since anyone can tell a story, we are involved in an intricate process of making a meaning for events (and rumored events or myths) for ourselves and for the people the story might be told to. We are also involved in breaking and remaking harmful master narratives and undoing the dangers of only having one story [57], the most common way social justice movements do that is by offering new stories that give new interpretations to things that we see presently but also events that have already transpired.

Storytelling, like all works of justice, is always about power dynamics, because it is about making intentional choices: which characters are focused on, whose life and fate matters, who is telling the story, what challenges do they face, how will the conflict be framed, what events will be included (or excluded), what plot choices will be made and what voices will be heard the most and what solutions and choices will the characters be presented with and how it will end.

It is in the “how” and “what parts” of storytelling that an understanding of “reality” an audience has might be reshaped. For many people, especially oppressed and marginalized people whose stories are not heard and seen in the cultural mainstream, to tell a story can be bold and inevitably political. Telling another story than the one that is widely accepted is an act of illuminating cracks in other stories that might hold unpleasant truths, in itself it is a manifestation

of retelling or revealing history, believing that transformative change is possible and that people and situations can change. Many social justice movements have previously used storytelling to break centuries' old silences.

Science remains an important part of research and inquiry, but the methods of engaging with and communicating are beginning to change. We are starting to appreciate different forms of knowing, people's lived experiences count as knowledge itself. Over the past several years, Catherine Coleman Flowers has been illuminating the lived experiences of Black Americans in Lowndes County, Alabama to show not only how the local, state and federal government has failed them but also show how previously, their own suffering has been pinned on them for failing to pay exorbitant fees to clean their own wastewater system. Going beyond a story about "hygiene", "epidemiology" or even "human suffering", her storytelling and activism makes it about environmental justice centered on human rights. The Commission of Human Rights in the United Nations heard and saw from the members of Lowndes County through investigative journalism what "human right harms" looks like in a country as "developed" as the United States. Their stories now form part of what is now considered "scientific data", the documentary evidence of environmental racism and human rights impact led to international pressure that eventually forced levels of Alabama government to be held morally and legally for the harms members of Lowndes communities were facing. A huge win for the life long advocates of the waste water crisis in the region but these stories are helping to build more narratives. Environmental injustice and racism is a human rights issue.

We can interfere with new narrative and give space to stories and voices long ignored and unheard. Storytelling has the ability to interfere with new narratives, influence what happens

next, and deepen existing understanding of injustices by “bringing the trouble home”. Stories that become public knowledge can point to underlying broken systems that drive environmental destruction.

A good story in whatever format it is created or told, is felt before it is known. To this end, effective storytelling must bring the “problem home” and “make it personal” in order to invoke empathy. Listening to stories, maybe even more than telling, can become an avenue to a shared reality, where it becomes possible to meaningfully engage with what is unfair, corrosive, broken, in rewriting and righting wrongs done. Storytelling and seeking “justice” whether in courtrooms, boardrooms, campuses or the streets of a city are highly linked but one does not always lead to the other.

Storytelling as a social technology has great potential, to open an avenue of shared reality and build empathy. Alternative Reality Games (ARGs) such as the one being constructed and evaluated in this project will create a “world” that speaks to existing injustices, advocate for environmental justice, just sustainability, restoration and highlight what work needs to be done to right wrongs done to oppressed communities and the consequences of leaving that work undone.

CHAPTER 3: METHODOLOGY AND THE CREATIVE PROCESS

We both identify as black women who live in the United States and our experience is through that lens, by examining existing literature and reflecting on our personal experiences we understood the practical significance of justice-based storytelling in challenging existing narratives and lending a voice to those who have been silenced.

To that end, we began to refine our own conceptions of justice. We found that many of our definitions included “being treated fairly” “actions that lend themselves to egalitarianism”, “righting an existing wrong” and “rewriting and re-balancing the scales of power”.

The decision on what platform or type of experiential learning to use as our model for the capstone came naturally through our experiences with popular culture - Alternative Reality Games are quite popular although still remain a somewhat niche experience mostly located on platforms such as Twitter, Tik Tok, Reddit, with some of the game contents being located in different platforms already listed or platforms like YouTube. ARGs aim to somewhat confuse people, especially those stumbling onto them while scrolling, they make the reader question whether the presented narrative is real, someone is [extremely] exaggerating actual events on the Internet again, or this truly is a work of fiction. The confusion and desire to get to the bottom of what is going on is what often grabs the attention of the prospective players, something we could not afford to do due to the time constraints required for the project. This, however, did not deter us from wanting to create an ARG, an experience that is aimed to be immersive, puzzling, and entertaining. If we are not able to make people stumble upon our experience for that initial dive

into the story untangling, we thought, then we can increase immersion through some other means like character alignment quiz, actual puzzles that players need to solve to continue the story, and surveys.

Our goal was to create an experience that people walk into without putting up their defenses and in a covert way create a conversation with them about EJ. The commonly dark and grim nature of ARGs' narrative, like apocalypse, murder, even supernatural hauntings, or sci-fi topics was actually a perfect medium to create a world in which the experiences of select individuals affected by the world issues are shown through the first-person point of view. Even if our participants do not know much about EJ, by reading from the character's POV of how they struggle to live in their neighborhoods, now polluted by hazardous waste, and how the highly consumeristic and individualistic culture has left them with little to no community and mutual aid. All things echoing different experiences shared by those in our communities. However, the goal for this experience is to skip the question of "Can you listen to our communities?" and go straight to putting the reader/player into the character's shoes, seeing things as characters saw it, regardless of the player's identities and sometimes in spite of them.

With that in mind, we started creating the characters in the Alternate Reality Game that would help us tell a story centered around justice. We created story boards explaining the characters' differing racial, ethnic and gender identities. We included their occupations, disabilities, existing illness and socioeconomic status. More challengingly, we also created temperaments for the characters, some of them are impatient and skeptical, some are highly moralistic and others still are anxious but prepared for any eventuality.

Living through the pandemic and being a part of the group that constantly was one of the most affected, it was clear for us that we wanted to create an experience that would in a way mimic the reality many BIPOC people have lived through during the height of COVID-19 pandemic.

Through our experience with traditional ARGs we had a choice between a more realistic or fantasy-esque direction, and we have chosen an experience that is closer to regular life. After reading some literature on different epidemics and pandemics throughout history, like *Scourge* by Jonathan B. Tucker we have decided on writing about a fake virus that is running amok due to multiple vectors and how easy it was to spread. Since we did not have to select a real virus we have elected to look at prominent epidemics and pandemics and what vectors and symptoms they carried, as well as how the world attempted to eradicate them. We focused on creating the narratives from the perspective of people who do not have much say in the matter and are regular humans trying to live their lives, a connection often lost when discussing such historical events, especially from scientific perspective.

ARGs typically exist in a non linear format across multiple websites. The ARG we created formally called “Take a step in ARG” (henceforth referred to as “the game” or “the ARG”), exists on a single website powered by Wix.com website builder. We opted to make the ARG hybrid, that is, including both reading the disorganized project from the outside but also creating a “way in” as puzzles and options for the participants. The reasons to combine the different aspects are to ensure that participatory learning and engagement is maximized. Another reason to use a hybrid experience is to evaluate player experiences and inputs as a way to better understand user interaction as compared to traditional ARG format, which requires users to read the story but does not intentionally collect information. In an effort to minimize anchoring and

confirmation biases, players never saw the storyboards of the characters or any of the other players' gameplay.

We have chosen to do participant recruitment through Reddit, as it is one of the main online communities for the Charlotte student body. Reddit is an accessible platform and students utilize it both for campus/academic information and entertainment purposes. We first posted an interest form to ensure that people who might not check the platform regularly would receive information from us directly if they are interested in participating or know someone who would. After the potential participants actually visit the live website they are able to read more about our capstone and learn more about us as the creators. The starting point of the experience is to take a character quiz which we build on a Typeform platform which allows us to edit what questions a user sees based on the answers they have provided in the previous questions. Ultimately, we created five distinct characters and have attempted to create questions that would go against certain biases or preconceived notions people might have. For example, one of the questions in the character alignment quiz asks whether their character exercises regularly and is an athlete, which could be seen by a participant as a skill that would be valuable in an emergency situation, the one introduced vaguely at the start of the experience. If the participant replies yes to the question, they will actually see questions about a differently abled character that is an athlete, however, they lose their access to mobility aid during the story progression. We have intentionally created a few questions that narrow and broaden participants' options .

To track parties interested in the hybrid experience, demographic information, familiarity with EJ principles, knowledge of AR media, changing attitudes, ideas and player feedback about their game experience, we sent out interest forms, intake forms and character alignment quizzes before assigning participants playing characters. After gameplay commenced, we administered three surveys at equidistant points of its duration. The components and purposes of the survey are listed in the table below:

Name of evaluation	Purpose	Information gathered/questions asked
Hybrid ARG experience interest form	Keep track of everyone who is interested in the hybrid experience. Increase recruitment reach.	Names of interested parties, encouraging them to include email addresses of other people who might be interested in the experience in the form.
More about you intake form	Get more personal information about participants who have indicated interest in the hybrid experience.	Career interests, familiarity with EJ principles, familiarity with Alternate Reality media.
Character Alignment Quiz	Assign participants with playing characters that most align with their temperaments.	What a participant would do in seemingly random situations (e.g. if they would sit next to a stranger etc).

Survey 1	Track base level attitudes, gather early player feedback, ensure all of the participants are able to understand and execute game structure and instructions respectively.	Gauging the base level emotional connection between a player and the character they play, user friendliness of the game, feedback on what would make the game better, if their conceptions of EJ have changed or being challenged and how likely they are to recommend the game to someone else.
Survey 2	Ensure all of the participants are able to understand and execute game structure and instructions respectively, ask participants if the “educational” and “participatory” objectives of the ARG have been achieved. Ask if participants with prior ARG player experience have specific feedback on the hybrid experience	Gauge ongoing emotional connection between player and the character, if the games are educational and collaborative in nature. If conceptions of EJ have been additionally changed or challenged. If the player has prior experience with traditional ARGs, how their hybrid experience so far has deviated from their expectations (this question was optional), likelihood of recommending this to someone else.
Survey 3/Closing survey	Combines the purpose of both	Combines Survey 1 and 2 questions.

	Survey 1 and Survey 2	
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Table 1: Description of all recruitment and intermittent evaluation material. Participants' preferred name was requested in every survey save for the character alignment quiz; links to the full surveys and quizzes are in Appendix C: Recruitment and Intermittent Surveys. Survey 2 and 3 also asked if participants would be interested in keeping up with the ARG in the future, this is explained further in the "Discussion" section.

The surveys were created by Google Forms Inc. Participants could not access the rest of the game until they filled out the surveys at equidistant points of the game. After completing the survey, a password was issued to the participants to allow them to continue the game. The participants took each survey once. Some questions were recurring, but we encouraged participants to choose options that describe how they *currently* felt.

CHAPTER 4: RESULTS

Our data collection focused on three things,

1. If there were any significant changes in the level of understanding of EJ conceptions and attitudes towards injustice,
2. Degree of “participatory learning” that the ARG inspired and
3. Experiential difference between traditional AR media and the hybrid experience. This was specifically targeted at participants who had prior experience with AR.

For an in depth discussion, we collected real world participants' demographics including preferred pronouns, racial identity, ethnicity, career interests, familiarity with EJ principles and prior experience with Alternate Reality media. We compared the real life demographics of our participants to the characteristics of the playing characters and used the results of the character alignment quiz to assign playing characters. We used quantitative methods to track trends and attitudes related to players' level of connectedness to their character and the events of the game. Similarly, we reported the level at which participants felt like the game had encouraged them to question the current state of the environment and what communities are most affected by environmental hazards.

	Real world characteristics	Game player characteristics
Lebogang Balewa	Interested in law/legal services No prior knowledge of AR or EJ	African American Epidemiologist/Infectious Disease expert Knows survival techniques
Garrett	Interested in financial services Some knowledge of EJ Engaged with AR once or twice	White he/him pronouns Lives in the Southern US Large scale farmer/agricultural worker Has a family
Vladislav	Interested in Informational Technology Services No knowledge of EJ or AR media	Origin from Slavic country he/him pronouns Differently abled Elite athlete A myriad of connections
Carlos	Interested in healthcare Some knowledge of EJ Knowledge of AR but no direct engagement	Latine he/him pronouns Works for a corporate firm Strong moral character Limited English(speaks portuguese)
Navi	Hospital and healthcare interests Engaged in AR media once or twice.	East Asian origin she/her Multiple chronic conditions Rears livestock and rescues birds

Figure 1: Real life demographics of participants and game demographics of characters.

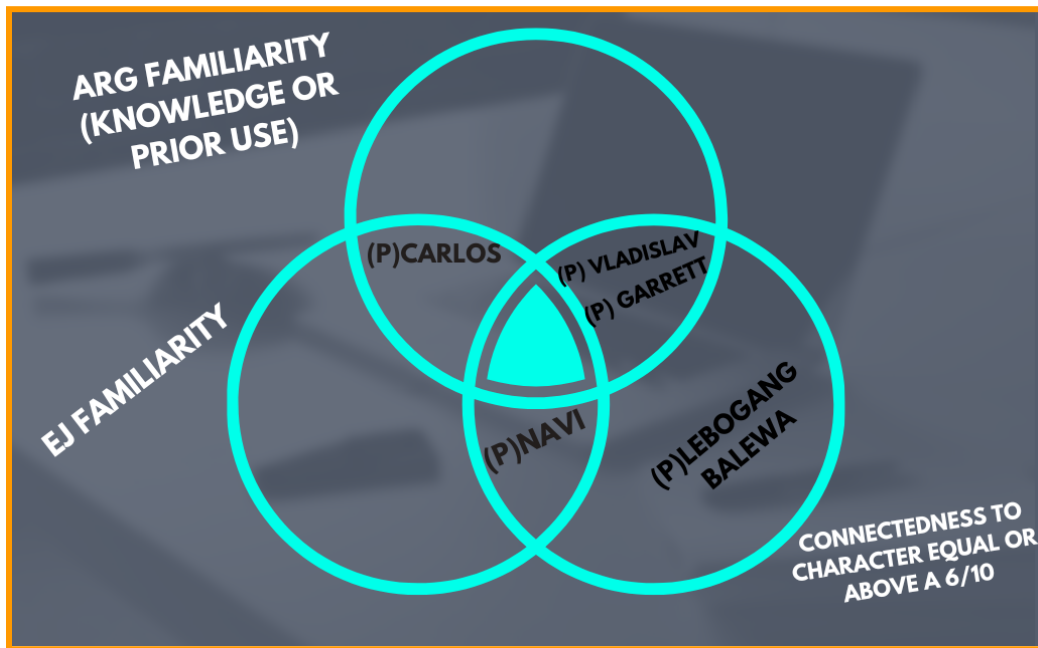
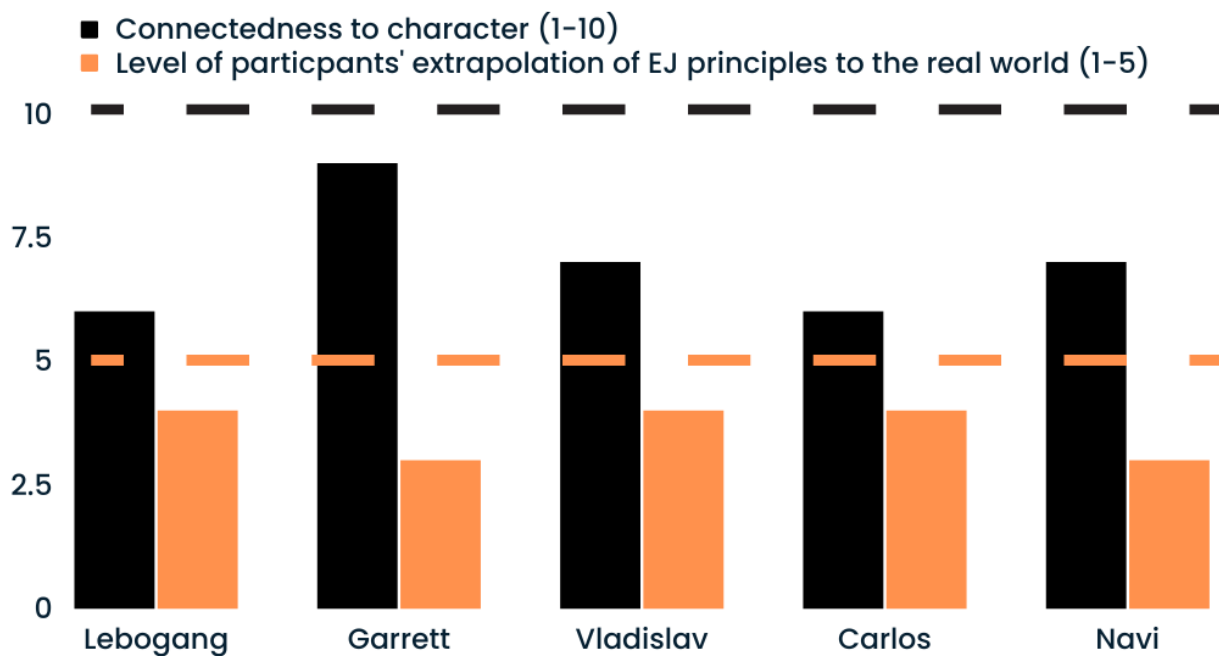
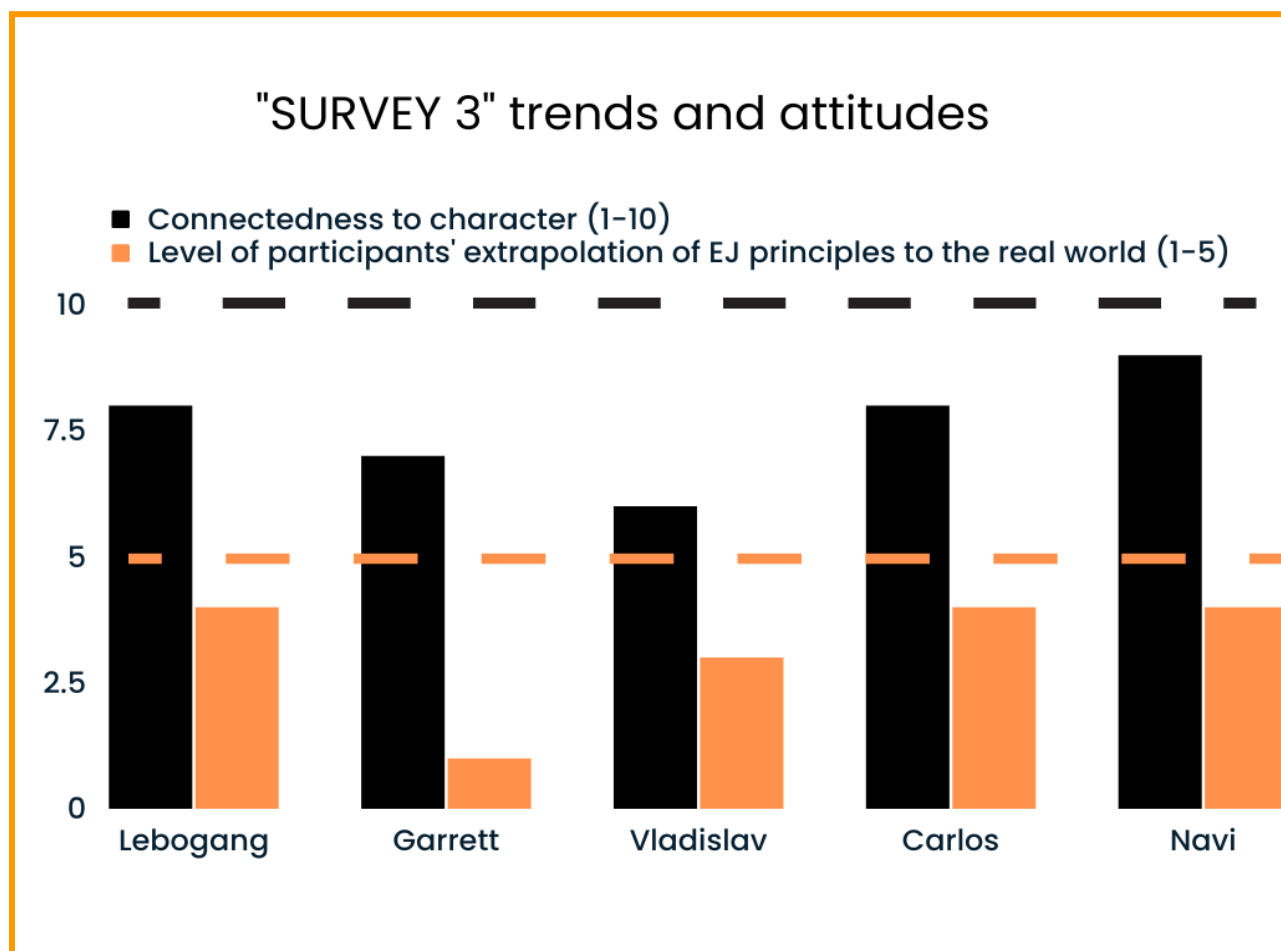


Figure 2: Venn diagram showing intersection between participants' connectedness to their character, knowledge of EJ principles and experience with Alternate Reality media. (P)= Carlos participant playing as Carlos.

"SURVEY 2" trends and attitudes





Figures 3 and 4: Compound bar charts showing participants' trends and attitudes towards playing character and EJ principles. The exact questions asked were: "On a scale of 1-10, how connected do you feel to your character or the events they are going through?" (black bars) and "On a scale of 1-5, how much do you think this experience has made you question the current state of the environment and how it affects different communities or individuals?" (orange bars). Broken lines show the maximum value participants could have chosen in response to the question on the survey.

CHAPTER 5: DISCUSSION

The data collection and analysis process has allowed us to reflect more on the role our identities, biases and personal stories have influenced the creative process throughout this capstone project. Our research inquiry process employed the scientific method but some decisions regarding character creation, development and narrative decisions in gameplay relied on personal interpretations of the real world injustices. Our encounters with activism and racism and as explained previously, how we define ideals like “justice” influenced what stories we felt needed telling. In the end, we made creative and narrative decisions that “felt right” and gave identities that are typically alienated and depreciated in mainstream media empowerment. For instance, the only playing character with experience in Infectious Diseases is a black woman. Not only is she highly educated and prepared, she is on the forefront of scientific inquiry to understand the mechanisms behind the epidemiological crisis in the country and has survival instincts and techniques that save her life on multiple occasions. Other characters have chronic conditions such as diabetes that require constant monitoring while others are differently abled. Most of the characters are members of the BIPOC community and their identities are approached in an organized and non stereotypical fashion. Case in point, the East-Asian character in this story is neither docile and submissive nor are they proficient in martial arts. Our guiding principle was to break communities and identities away from pigeon holes and encourage participants to think of themselves and the characters in an unorthodox fashion.

We encountered some technical difficulties while using Wix.com to create the ARG. Since the layout involved many embedded pages and navigating multiple windows it caused the builder to operate slowly, sometimes saved changes would not publish in the format they were designed to.

The possibility of moving the ARG to another website builder is one we considered but did not execute because of time constraints.

The process of challenging existing conceptions is slow and often needs to be encouraged using a myriad of tools. We did not encounter a significant change in participants' attitudes concerning EJ and ER in the real world. Though we were somewhat disappointed in our findings, we anticipated it. We saw a high likelihood of recommending the game to another person and about 60% of the participants willing to continue the capstone project. Participants reported that they experienced higher levels of engagement. 40% of playing characters “strongly agreed” with ease in understanding game directives and structure while another 40% “agreed”. When asked if they would consider following the game and this research in the future, 60% answered maybe.

If this research continued, the project would be followed up with participants annually for two years. This would create an opportunity for a longitudinal study of changing perspectives and attitudes of EJ and ER. To represent more identities, more playing characters would be created and the original storyline would be expanded, a possibility may be another virus being introduced into the game. This virus perhaps affecting only a specific demographic or having a specific demographic be immune to it like in the case of those having sickle cell anemia having immunity to malaria.

To that end, other directions of this research project includes obtaining authorization from the Institutional Review Board (IRB), having participants take the Harvard Implicit Association Test after gameplay to assess participants' existing biases and discuss the results to their degree of comfort in an exit interview. In regard to the steps of how the game would be executed better, we

would use a non-free platform more geared towards Alternate Reality Games such as 8th wall. The challenge with this would be to acquire funding to use this platform because of their highly specialized nature they typically come in a subscription format. In subsequent runs, the surveys and other methods of intermittent evaluations would be performed using “Typeform”. Since Typeform exists as a bracket and adapts to the answers of participants, it would be more optimal in getting an accurate picture of the participants’ ideas, feedback and attitudes. As mentioned earlier, a potential exit interview of participants would be a more effective method for gauging participants’ attitudes.

We have also considered formally including peer experience reviewers. We have done this in a more casual manner by asking our friends, loved ones and capstone peers for advice or opinions on the storyline and puzzles, however, we now see a tremendous value in having more structured reviews which could allow us or the future creators to expand and edit any issues that arise through the review process before the experience is shared with potential players. This could include creating a pool of various questions that could be used in Typeform and reviewers rating them and only a certain number of high ranking questions making it into the final cut, addressing any issues of representation or lack thereof, editing the speech of the characters to better showcase the storylines behind them. We do want to acknowledge, however, that perhaps having a group of more formal reviewers could definitely help the process but also potentially limit or even shift some of the goals or vision we or future creators have, so we think that being conscious of such influence is key if this were to be implemented.

This new framework will provide researchers with more in depth information into what attitudes may be most susceptible to change and how narrative gameplay can be fine tuned to target those

attitudes. Overall, we also hope that this model of creative and engaging storytelling proves to be an effective way for students in the Honors College to showcase their work and interests as well as foster conversations about important topics among the broader student body.

CHAPTER 6: REFLECTIONS

Our academic experiences have in many ways co-inspired us in the creation of this project as a whole, particularly in the making of the storyline for the actual storyline. As biology majors, we have taken a plethora of classes focusing on the functions of the body both human and animal as well as plants and asked ourselves and our peers questions about intelligence, consciousness and even what defines humanity or life as a concept. At its core we wanted to create a storyline that portrayed people at the center of a viral epidemic, a cold and emotionless killer that is not alive itself, but manages to reap the lives of all it comes in contact with. Jumping from host to host, spreading through objects, being able to lie in wait until it can latch onto a carrier or a new host. We wanted to highlight that while this virus itself is not alive and does not pose any preconceived notions, our society through actions makes it seem like it does. Just like Jonathan B. Tucker writes in *Scourge*, small impoverished communities struggle to survive the smallpox epidemic while their rich neighbors are healthy and somewhat thriving, we wanted to create an experience that would put a reader in a middle of a similar situation, not in the past and not in the future far away like climate change might feel for some people, but exactly in the *now*. We wanted our participants to ask themselves even if not consciously or actively what would they do? What would their options be? Where could they turn to? Would they be the ones trying to save, exploit, or ignore others? Is there a possibility with such a virus afoot that some government might try to use it as a weapon of bioterrorism even though this virus could indiscriminately kill or significantly disrupt the life cycles of anything it comes in contact with? We had and still have many aspirations for our project, however, due to a limited amount of time working on our capstone project we are only able to delve into parts of these questions. Our hope

is that the connection our participants could make with the content before them is able to continue the query into these questions, and bring the truth that many BIPOC people have lived through these questions in reality. Disrupted food chains, being forced to come to work as immunocompromised fearing the loss of income and inability to afford food, targeted and racially motivated attacks, decline in access to accommodations, “nonessential” health care and resources needed to survive, corruption, fear-mongering, and others are only some of the things that people have experienced first hand. On another hand, some services aimed to take care of some of the environmental issues like plastic waste management were completely halted in some areas due to lockdowns, people working in that sector dying, etc. even further lowering the living conditions of people living in the affected areas. Once again leaving poor and often marginalized communities behind in many aspects of life.

As we reviewed different materials and created the ARG we were once again reminded how important it is to be connected with our local communities, and constantly take action to protect and mobilize our communities in the fight towards social justice, clean air, drinkable water, and sustainable practices. We cannot afford to wait until another world wide disaster strikes to realize that many of the members in our neighborhoods, in our classes, in our families, are already left behind. We cannot afford to continue looking away.

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APPENDIX A: STORYBOARDS FOR ARG CHARACTERS

Storyboards:

[Character 1](#)

[Character 2](#)

[Character 3](#)

[Character 4](#)

[Character 5](#)



You have reached the bottom of the oldest posts from Lebogang, congratulations! To continue reading and getting closer to understanding what is about to happen you will need to complete the puzzle below and use the answer to answer one of the questions in the survey. This is key as after you submit the form if your answer is correct you will see a link to the next page!

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
7			6	13	11					5		1	15				21	19			25				

D O N O T F O E T W E E O A E
 6 15 1 15 19 11 15 9 12 13 19 25 24 13 9 13 18 15 17 4 3 10 13
 F O F O O T L O S E T A
 11 9 15 10 11 15 9 18 15 17 10 14 12 24 19 5 15 21 13 19 9 3 4 8
 O F W E E O A E T N T O O
 15 11 25 24 13 9 13 18 15 17 3 9 13 19 9 18 14 1 12 19 15 12 15
 O N E
 15 1 13

After you completed the puzzle what is the letter above the number 18? * 0 points

- ☐ Z
☐ G
☐ I
☐ Y

Submit

Clear form



You have reached the bottom of the oldest posts from Garrett, congratulations! To continue reading and getting closer to understanding what is about to happen you will need to complete the puzzle below and use the answer to answer one of the questions in the survey. This is key as after you submit the form if your answer is correct you will see a link to the next page!

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
	25			30								6	5	13	14		4					20			

O	N	O						R	N					W					R	O	M			O		R			
7	13		5	13	7			3	17	4	5			16	20	16	15		23	4	13	6		15	13	17	4		
O	M	M		N										E	R	E							P	O	W	E	R	N	
26	13	6	6	17	5	8	7	15						3	22	10	4	10		8	2		14	13	20	10	4	8	5
														N	M	B	E	R											
														5	17	6	25	10	4	2									

[Step into the ARG](#)

[Current Character Storylines](#)

APPENDIX C: RECRUITMENT AND INTERMITTENT EVALUATION MATERIALS

Hybrid ARG experience interest form [Hybrid ARG experience interest form](#)

Intake Form: [Post recruitment Intake Form](#)

Character Alignment: [Character Alignment Quiz](#)

Survey 1: [Survey 1](#)

Survey 2: [Survey 2](#)

Survey 3: [Survey 3](#)

APPENDIX D: SURVEY RESPONSES FROM PARTICIPANTS

1.  ARG_Surveys (Responses) UHP Capstone Mora_Nicole