PLAYERS' ACCOUNTS OF CULTURAL BIAS IN ESCAPE ROOMS

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ABSTRACT

This study examines the experiences of cultural bias by escape room enthusiasts when playing live action puzzle-based games in foreign countries, cultures, and languages with a focus on how the cultural bias impacts their enjoyment of the game and what form the cultural bias takes. Through content analysis of 33 interviews of enthusiasts from 4 continents, culturally referential puzzles are quantitatively categorized according to a socio-cultural model adapted for escape rooms. The data provides viewpoints that can allow escape room puzzle designers to evaluate the potential cultural bias in their own designs, thus making their games more approachable for players from different cultural backgrounds.

INTRODUCTION

Escape Rooms are games where players "discover clues, solve puzzles, and accomplish tasks in one or more rooms in order to accomplish a specific goal (usually escaping from the room) in a limited amount of time" (Nicholson, 2015). Escape Rooms have grown in popularity over the last few years, so much so that the

Red Bull Mind Gamers ran Escape Room World Championships in 2017 and 2019. For the first world championships, the semi-final and final games were designed by a team of game design students from Wilfrid Laurier University in Brantford, Ontario, Canada, led by Scott Nicholson.

As the first championship games ran, it became apparent to Nicholson that they had not considered the cultural bias they had brought to the designs. Some teams were at a great disadvantage because they did not share a cultural background with the North American designers and European producers. An example of this was the use of red and green to indicate stop and go; players who did not drive or were not from cultures who used these colours would be at a disadvantage to players who had meaning attached to these colors. Some information was provided in English, and while this was translated in the game through Google Translate, the wordplay designed to give players a hint did not necessarily transfer.

After talking about this, Nicholson and the Red Bull Mind Gamers decided to hire a researcher for the second World Championship in 2019 and received funding from Red Bull to do so. Nicholson and a different group of students led the design work on the semi-finals and finals, and Shannon McDowell was brought in to review the design to guide the team. She conducted a literature review to locate models of cultural bias, and used this model to develop a guide for the creation of video content in escape rooms (McDowell, 2019). English was not used during the games, and clues were provided through videos that showed teams what to do. Some competitors were back for this second round and commented that they found the games much fairer this time.

At this World Championship, McDowell started conducting interviews of competitors, many of whom had international

experiences playing escape rooms, about when they experienced issues of cultural bias in escape rooms. She continued on after the event by interviewing other escape room enthusiasts located via the Internet who had played games in different continents. The study presented in this paper are the results of these interviews with expert players about their experiences with rooms in different continents.

STUDY SAMPLE

This study used a convenience sample of 33 experienced escape room players. On average,

each player had played 265 escape rooms each, with the median being 172.83. There were two outliers who had played over 1300 rooms each, but even removing those outliers, the average number of rooms played was 197 with a standard deviation of 50 rooms. Using an average cost of $25 USD per room played, this means that our subjects had, on average, spent almost $5,000 USD for just the entrance fees for escape rooms over the last few years[1]. The sample is biased toward English-speaking players, with about half of the subjects being from North America and one-third from Europe. The remaining subjects were from Asia and Australia.

We looked for correlations between the number of incidents of cultural bias reported and other demographic variables using Spearman's Rank-order correlation. We had expected players who had played more rooms to have more reports of cultural bias in escape rooms, but the variable with the highest correlation was the number of different continents in which the subject had played. As shown in table 1, those people who had played escape rooms in 4 continents reported, on average, more than twice as many incidents of cultural bias as those who had played in fewer continents. This does make sense, as those who had played many

1. One of the in-jokes of escape room enthusiasts is "Don't do the math." Now you understand why.

games in fewer continents were less likely to find incidents of cultural bias than those who had played fewer games, but in more continents.

Number of continents played in	Average number of incidents reported
4	15.75
3	7.33
2	6.44
1	5.73

Table 1: Average number of Cultural Bias incidents reported by Number of Continents in which subjects played.

The first group of subjects were group interviews with teams at the Red Bull Escape Room World Championships in London. We then recruited additional subjects through online forums for escape room enthusiasts and continued the interviews online and by the telephone. The interviews with subjects lasted approximately 30 minutes, with the bulk of the time focused on questions and prompts around incidents of cultural bias. We explained what cultural bias was and asked questions surrounding players' experiences playing escape rooms internationally, encountering puzzles requiring specific knowledge, and players' thoughts and feelings on games that require specific knowledge.

Interviews were recorded and transcribed, and then coded using the model we had developed from our literature (presented in the next section). We used this coded data to collect incidents of the same type together, and also looked for patterns in the

distribution of categories of incidents by various demographic variables. The results of these analyses are presented after the presentations of our model of cultural bias.

There are some biases in the data to recognize. First, the majority of the subjects were from North America or Europe, and therefore, there is a cultural bias in the results as players from other continents are under-represented. As well, performing data analysis at the continent level will lead to a bias in results, particularly when comparing enthusiasts in the 2 countries that make up North America to the 44 countries in Europe. A deeper study focusing on a specific continent may reveal interesting patterns, but is beyond the scope of this study. In this sample of enthusiasts, 42% of them mentioned during the interview that they did research before traveling so that they could focus on games that were recommended. This data is therefore biased, in that many of the travelers may have played games that were highly recommended for tourists, and thus contained fewer cultural biases. We hypothesize that without that prior research, players would encounter many more examples of cultural bias in escape rooms. We see this study as a pilot study, and talk about how to expand on this research in the Future Research section of the paper.

MODEL OF CULTURAL BIASES

Historically, cultural bias has been explored in the context of education. Test scores were found to be biased when the creator of the test inadvertently required knowledge particular to their demographic group that was not necessary to measure the trait the test was evaluating (Geisinger, 1992). When discussing cultural bias in games, Salen and Zimmerman (2003) describe how cultural context affects representation and gameplay by reinforcing existing cultural biases. Particularly in the experiential environment of escape rooms, it is important to investigate the cultural structures and cultural identity inherent

in the game in order to create "successful play experiences" (Salen and Zimmerman, 2003). In the case of this study, we defined cultural bias in escape rooms as occurring when a game designer assumes a degree of common knowledge based on their own cultural standards. This assumed knowledge could, for example, reference technical, linguistic, social, or economic standards, and would not be universally known by players from a different cultural background.

When evaluating the impact of culture, the first step involved identifying the visible aspects of culture that were applicable to escape rooms. By sourcing various sociological models of culture (Brown, 1995; Barkan, 2012; Hofstede, 2001), we were able to conceptualize five primary elements of culture in regards to escape rooms: language, symbols, norms, artifacts, and knowledge. These categories do not encompass all theorized elements of culture, but are meant to model the components of culture most commonly experienced in escape room games and reflected in this study.

A note that while values are a commonly included category when studying elements of culture, it is a less applicable category in an escape room environment. There are few escape rooms at this time that offer players choices or decision points according to their values, and no such examples emerged from this study. As noted by Schwartz (2011), it is also difficult to differentiate between individual and cultural values, whereas differences in categories such as language are more evident in a study such as this. However, as the escape room industry expands and grows into less determinative gameplay, values may become an element of cultural bias worth exploring.

Through content analysis of interviews, culturally referential experiences were identified and grouped according to the category that best exemplified the cultural element and/or bias experienced by the player. These experiences predominantly

featured puzzles, but also included interactions the players experienced prior to and during the game with game hosts and/or actors. As we started to code the data to the five categories of culture, we realized that there were additional categories needed due to the interactive nature and experiential play of escape room design. Thus subcategories were created under each of the five elements to allow for a more detailed and accurate depiction of players' escape room experiences.

The five major categories for our model, and the percentage of incidents reported in each category, are as follows:

- **Language** (20.2%) – A system of communication used by a particular country or community
- **Symbols** (8.7%) – Representation of a letter, word, or concept
- **Norms** (10.6%) – Standards and expectations of behaviour
- **Artifacts** (26%) – Objects that constitute a society's material culture
- **Knowledge** (34.6%) – Information acquired by a person through education or experience

Each major category is broken into several subcategories. The categories and subcategories are defined below, along with a brief discussion of the quantitative patterns of interest and examples provided by subjects to demonstrate how these types of cultural bias have manifested in escape rooms.

LANGUAGE

The third most common category of experiences reported by players was language. Language, defined here as a system of communication used by a country or community, is divided into two subcategories for spoken and written language.

About 20% of all incidents reported were based on language. Of

those, about 75% of the time, the issue revolved around written language instead of spoken language. We hypothesize that this is because most spoken language in escape rooms is presented as background information or narrative components, and many times, there are no challenges in the room that require the player to understand what was said. On the other hand, it is common for players to be given written material that must be read as part of a challenge; therefore, there are more incidents reported for written language than spoken language.

Spoken

Players reporting experiences of cultural bias in spoken language interactions primarily referenced interactions with escape room hosts and actors within the game. Differences in fluency made communication slow and frustrating. Players reported not understanding plot points in the game or being unable to easily interact with actors, as follows:

> "…with this game there was a segment where you were asking questions of a character and the nuance of how we were phrasing our questions got kind of lost. And some of that may have been on us for not thinking about the fact that we really needed to be careful with our phrasing because the person interpreting English was not their first language."

Written

Incidences of cultural bias in written language included ciphers, puzzles translated from their original language where the translation was unclear, regional dialect variations unfamiliar to players from outside that region – for example, the differences between American, British, and Australian dialects of English, and the ability to recognize, read, or write a word. One notable example from a Chinese game required players to write a Chinese character with the proper stroke order, which is a difficult challenge for players without prior experience in writing Chinese.

It is also worth noting that players who are fluent in multiple languages have the ability to speed through translation puzzles, but also may find themselves distracted by text in another language. One player reported spending time on a German newspaper in an English-speaking room, thinking that it was part of a puzzle. The newspaper turned out to be a piece of set design, but because the player spoke German, they were distracted from the main game.

SYMBOLS

Symbols are a representation or placeholder for a letter, word, or concept, including the subcategories of gestures, icons, and objects.

Around 9% of all incidents reported were symbol-based, with the majority of those incidents being based on having to understand what specific icons meant. An interesting pattern in the data was that players from European countries were less likely to report symbol-based incidents (only about 5%) than players from North America. Our hypothesis is that players from the monoculture of North America are unlikely to encounter unusual symbols when they travel in their home continent, while players within Europe encounter new symbols on a more regular basis, both due to the relative ease of cross-border travel, as well as the variety of cultural representation in media. Because they are more accustomed to the challenge of interpreting new symbols and have a wider mental database of different types of symbols, players within Europe are less likely to perceive culturally-biased challenges requiring knowledge of symbols.

Gestures

Gestures are a form of nonverbal communication used to convey information or emotions. While none of the participants in this study indicated experiences with culturally biased gestures, we considered this subcategory worth inclusion for the possibility

of future research. Given that many escape rooms use either an in-person or a video-based introduction to a game, this is the place where gestures may be relied upon to convey meaning (McDowell, 2019). Gestures are an important category to research in an attempt to make language-free media for an escape room as well as in interactions with game hosts and actors. Gestures in an escape room setting that could cause cultural misunderstandings include the indication of numbers, facial expressions of actors that are not universal, and sign language, which differs between countries.

Icons

Icons are pictures that represent an object, idea, or emotion and made up the majority of incidents in the symbols category. While symbols are a convenient short form for a word or idea, not all symbols are universal and so can slow down the gameplay for players who are not familiar with them. Emojis, for example, could have different interpretations depending on the age and background of the person using them.

Most examples of icons reported by players encompassed codes, such as semaphore or pigpen, where a picture represents a letter. While text ciphers were categorized under written language, codes that use symbols are more appropriately categorized as icons.

We postulate that in a larger study with a wider range of player experience levels, we would see more experiences associated with icons. Experienced escape room players are more likely to recognize common codes and even have them memorized, making a decoding puzzle less tedious than for a less experienced player who would need to first recognize the code and then reference a translation key. This can work against an experienced player, however, as they may end up decoding a message before they were intended to, and that can disrupt the flow of the room

by confusing the player. As escape games are built around gated content, using a icon-based gate that some players may have prior knowledge of can cause problems to an overenthusiastic team. More on this issue will be discussed in the Negative Experiences with Cultural Bias section below.

Several unexpected uses of icons were described by players, including "… a room where they used Roman numerals, but you were not meant to use them as numbers. We were just meant to use them as visual symbols. So the assumption there was that no one would try to read them as numbers, which was quite strange." This is counter to the example above, where the designers used icons that some players associated knowledge with, but then that knowledge proved useless or misleading. If the designer is choosing to use an known icon set in a different way, it is important to provide players with a prompt that what they know about those icons may not be useful.

Objects

Using objects as symbols to represent words, ideas, or emotions was a lesser reported category, yet still significant in more tactile escape rooms. Examples included monkey statues to represent the phrase: "See no evil, hear no evil, speak no evil." The three statues that each represented a portion of the saying needed to be placed in the correct order. Another example involved pictures on placards that represented well-known London pubs, such as an elephant and a castle for Elephant & Castle. One of the authors experienced this in a room in the UK that required knowledge of paper sizes such as A4 and B3 to solve a puzzle.

In all the cases where objects were used as symbols, there was at least one other element to the puzzle, such as trivia, in order to solve. However, the process of connecting the object to the word or idea needed was always a significant portion of the puzzle that players needed to recognize.

NORMS

Cultural norms encompass formal and informal standards of behaviour or expectations, such as those implicit and explicit rules that are learned by living within a culture. Common types of norms across sociological models include folkways, mores & laws, taboos, and rituals. In addition to these subcategories, the study added a genre subcategory to include narrative tropes and expectations commonly found in escape rooms.

About 10.5% of the incidents reported were based on norms, with the largest subcategory being challenges that required players to know specific folkways or customs of a culture. As with symbols, we found that players from Europe reported fewer incidents of this type (5%). We hypothesize this is for the same reason as above – that players from Europe encounter different norms on a more regular basis than players from North America. Because of this, they both have a greater awareness of different norms, and are more comfortable dealing with challenges that require knowledge of different norms. While our sample of players from Asia was small, we did find that they were twice as likely to report incidents of cultural bias around concepts of norms, and specifically reported more incidents where players were required to use prior knowledge related to a narrative genre that the room was based upon.

Folkways / Customs

Folkways or customs are norms that encompass informal standards of behaviour. Behaviours such as table manners or personal space are not formally codified in a culture's laws, but still determine how a person is supposed to behave in specific situations. In escape rooms, folkways involve the experiences of the player in the room as well as puzzles.

Personal space and conventions around touch emerged in a few interviews. One player from North America noted that during

a game they played in Spain "they would essentially pin your arms to your chest and … frog-march you quite rapidly. And they knew the layout and I don't think it was unsafe but it was certainly very startling and quite uncomfortable for some people who are not used to that kind of physical contact." Some escape rooms in Russia have recognized that players have different tolerances for personal contact and will allow players to choose their intensity before beginning a game, in contrast to the previous example from Spain where players did not expect the close contact.

An example of a puzzle that assumes knowledge of folkways was experienced in Japan. Players needed to remove their shoes before entering the remainder of the game which was set in a Japanese house. This puzzle may not be obvious to players from cultures where it is not a norm to remove shoes before entering a house. In cases such as this, providing players with another clue in the room, such as a pile of shoes at the entryway, would help them overcome their lack of cultural knowledge.

Mores & Laws

Mores and laws are more formal standards of behaviour. These norms include the escape room's code of conduct, laws of the country or region, and local safety regulations, among others. Multiple participants in the study expressed concerns regarding varying safety regulations when travelling to foreign countries, especially those countries where the enforcement of safety in escape rooms is seen as more lax than their home country. One player reported needing to climb an unstable ladder to complete a puzzle, while another expressed concern regarding rooms that lock players in with no easy exit in cases of emergency. Another player described an escape room where the rules for the game were clearly described and emphasized before entering, only for players to discover that the only way to complete puzzles was to break those rules. Being required to purposefully break rules

is disconcerting for players and will lead them to second guess every subsequent action in that game.

Taboos

Taboos are negative norms in a culture, behaviours that are highly discouraged, such as sticking a fork in an electrical outlet or eating pork. In escape rooms, players encountering a cultural taboo experience uncertainty or reluctance to continue the game. Taboos in escape rooms can manifest as objects a player is reluctant to interact with. The following quote from a Canadian player about an experience they had in an escape room in the United States exemplifies a Canadian cultural taboo surrounding use of firearms: "… we had no idea that we're supposed to … touch the gun or look at the guns or I don't know. I guess, putting on my Canada hat, it's just like, I don't touch these things. This is an American thing."

Encountering a taboo in an escape room puzzle could also cause players to second guess their solutions, such as in the following example: "There was one game we played, that took place during, I don't know, maybe the Cold War and there was a Jewish spy or something. And there was a clue to something and, it wasn't that we couldn't solve it, it's that we didn't want to solve it. Because we thought that the answer, it wasn't necessarily antisemitic, but from our perspective, we were like, "If this was in our country, people would probably say that's politically incorrect and offensive."

Rituals

Weddings, birthday parties, graduations, and religious practices are all examples of ritual norms. Rituals are established ceremonies or activities that act to pass knowledge between generations and often mark life milestones. In this study, we did not hear from any players who had experienced cultural bias associated with rituals, however, we hypothesize that a larger

study will be more likely to find examples of rituals in escape rooms.

Genres

Genres, or common narratives or tropes associated with story themes, was added as a subcategory when it became obvious that some player experiences did not fit easily into existing categories. Particularly Asian participants in the study reported experiencing difficulties with genres of escape rooms where the story tropes were unfamiliar which impacted their ability to fully experience the game. However, experiencing cultural bias via genre is not limited to only foreign cultures when a player does not have the background in a particular narrative trope: "I feel like you probably lose a lot of nuance in the theme or the story or the culture because something's placed something somewhere and it might have deep, symbolic meaning, and if you understood that culture you might get it. And I mean that even in games where it's set in Australia. So, for example, we played a sci-fi game and there were lots of sci-fi tropes for example. And I didn't get what was going on in those tropes." Lack of familiarity with the genre or narrative tropes of the game impacts a player's enjoyment of the game.

ARTIFACTS

Artifacts are objects that constitute a society's material culture. In escape rooms, players interact with and manipulate various artifacts in order to solve puzzles. While some artifacts are near universal in use, others depend on a familiarity that varies with a player's age, background, and country of origin. Based on reported experiences, the artifacts category was divided into four subcategories: sensory, tools, recreational, and media.

Around 26% of the incidents reported were based around artifacts. The most common subcategory of cultural bias related to artifacts were recreational, typically where players were

expected to already know the rules of a game or how to play with a toy in order to solve the puzzle. Other commonly-reported categories involved knowing how to use specific tools, and having to identify specific items using smell.

Sensory

Sensory artifacts in escape rooms are objects that are interpreted and identified using a sense such as smell, taste, hearing, or touch. Scent puzzles were the most commonly reported in this subcategory, followed by puzzles interpreted through sound. Players' ability to interpret sensory information relies heavily on their cultural background and existing knowledge. For example, one player encountered an escape room in Austria that required them to know the local music. Several players reported scent puzzles that included identifying local spices and identifying alcohols. Another room required players to identify the scent of camel dung. Without the pre-existing knowledge of the sensory information, it is quite difficult to solve a sensory puzzle.

Tools

Tools are artifacts that assist a person in accomplishing another task, such as a hammer or a telephone. The difficulties that players reported regarding the use of tools in escape rooms primarily consisted of a lack of familiarity with the tool's operation. For example, one player reported spending time on a puzzle that involved flipping light switches on and off. "We played a room in New Zealand, and something that we didn't know is that the light switches are opposite… We ended up losing the game by 15 seconds or something because of that."

Other players discussed encountering locks that they were unfamiliar with, especially when the escape room host did not explain how to operate the lock. "I did this one room in Singapore and then when we got to the final door there was a digital keypad on it and I didn't know how to operate it. But my

sister who lives in Singapore was with me and she looked and said, "Oh yeah, this is the same keypad we have in our apartment building." And all the apartment buildings in Singapore have this keypad … But they didn't see the need to explain it before we went in the room because everybody in Singapore is familiar with that."

Recreational

Recreational artifacts are objects designed for leisure and entertainment purposes, such as a hula hoop or a video game. Players reported many board games and video games that they had encountered in escape rooms that expected them to know the rules in order to solve the puzzle. The most frequent game mentioned was chess, often associated with puzzles that require players to know how the different pieces move on the board.

One player reported that their team was delayed in an escape room due to needing to win a game of Snake, a game commonly installed on Nokia mobile phones starting in the late 1990s. Unfortunately, no member of their team had ever owned a Nokia phone or played the game, so they wasted valuable time learning the rules of the game and then attempting one by one to beat it in order to progress. Requiring players to know the rules of a game or recognize a game, even games that are perceived to be extremely common, will provide a severe disadvantage to those players without this knowledge.

Media

Media artifacts are associated with mass communication, such as books, radio, and television. Operation of media artifacts are again dependent on a player's age and cultural background. One player reported a puzzle that they successfully completed, but expressed concern for other players who are not as technologically adept: "And that also had the assumption that you

… were proficient in the internet, and you could do some things on the internet, for example. Navigate Google Maps and stuff."

Another player acknowledged that a Christian bible can be difficult to navigate if unfamiliar with the numbering conventions: "So there will be something like John 3:17 or whatever and there will be a Bible so that you can look up what John 3:17 is and maybe it has some numbers in it and it's a code. However, ability to look things up in a Bible is not necessarily a universal skill if you don't grow up with that. Like the table of contents and indexing scheme of the Bible is not like other books necessarily."

KNOWLEDGE

Incidents requiring specific knowledge were the most common type of cultural bias encountered in escape rooms, with about 35% of all incidents being knowledge-based. About 80% of these incidents required players to know a piece of specific trivia in order to succeed at a challenge, while the other 20% were riddles. Players from Europe were much less likely to report riddles as incidents of cultural bias, while players from North America were more frustrated when encountering riddles. We hypothesize that this is due to the role that riddles play in society; riddles are not part of the North American culture, while riddles (and related challenges like cryptic crosswords and poems) are more popular in Europe where they may be seen as common knowledge instead of puzzles to be solved.

Trivia

Trivia in escape rooms includes facts or pieces of information that may or may not be universally known. Examples of trivia that came up during this study included identifying famous landmarks or locations, pop culture knowledge, and scientific information. "So, you had to know the colors of the rainbow. I mean, that might span across all cultures and languages. But, the

thing is, do you remember all the colors of the rainbow and their order? Because, I don't."

Common knowledge in one country may not be taught or known in another. As one player said of a team member: "[She] solved it because she knew the date that Columbus sailed across the ocean, which is something I wasn't taught in school." Another player reported an incident in their home country that required them to identify a book from some plot details, but no one on their team had ever read that book even though it was often assigned in high schools.

Geography trivia also becomes more challenging when in another country or region. "In Europe, they expected us to know the flags of Europe." Recognizing landmarks and knowing the names of surrounding cities is also not common knowledge for players who travel to play escape rooms.

Even pop culture trivia is culturally specific, and knowledge of pop culture such as actors, music, and movies can vary widely even within a culture depending on age, interests, and socio-economic background. Identification of actors, knowing song lyrics, and recognizing movie titles were all reported in this study, even by players who lived in the countries where the escape rooms that contained these puzzles were located.

Riddles

Riddles are defined here are language dependent wordplay, thus encompassing a number of puzzles that require a depth of knowledge of a language beyond that of conversation. As one player noted: "… you're not solving riddles, you're remembering riddles." Riddles are culturally specific, potentially have multiple answers, and are very difficult if not impossible to translate. Multiple players in this study identified a specific puzzle from the same escape room where all text in the room had been translated to English except for a particular puzzle that relied

upon wordplay and couldn't be translated. These types of puzzles can be a source of frustration to players unfamiliar with them, as players not only need fluency in the riddle's language, but also a similar cultural background as the riddle's creator. One player commented on their experience with wordplay puzzles in Poland, saying, "there were times in these games where my [Polish] teammates would just say, "Look, you can't help." And then I'd hang out by the lock and wait for them to call off letters."

OVERALL ATTITUDES TOWARD SPECIFIC KNOWLEDGE

Negative Experiences with Cultural Bias

When asked about their feelings when encountering specific knowledge, or cultural bias, in escape rooms, just over 64% of responses were negative. This confirmed our hypothesis that the majority of escape room players would be negatively impacted by cultural bias in escape rooms. Participants used words such as "frustrating", "unfair", and "confusing" to describe their experiences. Three major trends emerged with players who reported negative experiences: losing the game flow, losing confidence in the game design, and involuntarily skipping puzzles due to already knowing the specific knowledge needed to solve the puzzle. All three of these trends resulted in the players' reduced enjoyment of the escape room, and some players experienced all of these effects in the same game.

Game flow is a term that is used in escape rooms to refer to a player's state of deep concentration and immersion in a game. Players of escape rooms are directly immersed in a setting and narrative, and as the game progresses, can develop a flow from one puzzle to the next. However, escape room players can also lose this flow when the genre or setting of the game is not consistent (Nicholson, 2016). Thus encountering specific information that is not referenced through environmental storytelling or that causes the player to recall information from

outside the escape room setting will interrupt the game flow and slow their progress. One player encountered a game with several pop culture trivia questions, such as Bruce Willis' height in centimeters, and was told to "Google it. Here's the Wifi code". Looking up information on the internet in this situation takes players outside of the game world and slows any momentum they may have had up until that moment, especially when the information could be provided through thematically appropriate environmental storytelling, such as a poster or magazine.

Loss of game flow can also occur when players simply cannot solve a puzzle that requires knowledge they do not have. The lack of knowledge prevents players from continuing on in the game. "it totally killed the gameplay for us, of course, because we spent so much time on the puzzle. It doesn't matter how great the rest of the game is. If you spend 20 minutes, just frustrated because you've exhausted all your options, it does put a downer on it." Players may have difficulty finding the same state of concentration and focus, lowering their enjoyment for the remainder of the game. As one player noted: "When I see a puzzle that requires a specific knowledge, first that gets me out of the experience at this moment, and then I just spend some time being angry at the puzzle designer."

Losing confidence in the game design also slows players down and causes them to second guess all remaining puzzles. Players reported losing confidence as a result of encountering specific knowledge, finding translation issues where they felt the need to double check any further written text, as well as in situations where technology or other props in the escape room failed to work properly. A player who experienced all of these situations described their thought process: "Am I going to fail this time because I don't have the outside knowledge, it hasn't been translated properly, it doesn't work properly, and your enjoyment is gone. Because you're second-guessing everything you do from that point forward."

An interesting contrast to players having a lack of the knowledge needed to solve a puzzle, is when players have too much knowledge and are able to skip steps in the game design to progress earlier than would be typical. Most of the examples players gave of involuntarily skipping puzzles involved codes or ciphers that experienced escape room players typically have memorized, and therefore do not need to wait to receive the translation key later in the game. One player when speaking about having prior knowledge in games described their thought process as: "Oh, should I solve this or not? Because we haven't found the Morse code yet, so maybe I should just let that be and maybe just solve part of it so that we don't have to do all of it." Even a player who was proud that they could help their team with unexpected knowledge still expressed disappointment: "We want to solve the puzzles. We don't just want to get to the end."

Positive Experiences with Cultural Bias

While our initial assumption was that cultural bias in escape rooms was a problem, we found that some subjects reported positive experiences when encountering cultural bias in escape rooms. Instead of it being a point of interest, these subjects found it to be an interesting learning opportunity to face a challenge that they didn't have the background to accomplish, and then learn something in the process. In many cases, this happened when someone was with a team of other players who did have the cultural background, so the bias didn't stop the players from succeeding as a team. In our sample, only players from North America reported this positive nature of encountering cultural bias; due to the small sample size, we aren't willing to draw a conclusion about this distinction. This does suggest an area for future research to better understand how an element in a game that requires cultural knowledge could be presented in a way that makes it a positive learning experience instead of a negative frustrating experience.

One type of escape room that is purposefully designed to require cultural knowledge are rooms designed for a specific intellectual property. For example, a *Harry Potter* room would typically require players to wave wands, cast spells, and understand what the purpose of an owl is. Players entering a game like this expect to be rewarded for their understanding of the intellectual property, and are wanting that level of immersion. The design challenge is to create games that reward prior knowledge of an intellectual property while still having the tools in the game that would allow players without that knowledge to succeed. For example, if a puzzle required knowledge of the four houses at Hogwarts, then having a poster in the room that provided players with the information needed to solve the puzzle would enable someone without the cultural knowledge to still continue in the game, albeit more slowly than someone who knew the houses by heart.

Another type of escape room that is designed with cultural biases are training rooms for organizations. A company wanting to train employees through an escape room may build challenges around the assumption that players, as employees, already know how to do some things like log on to a computer, access a building, or use certain information resources. Extending this concept, any educational escape room that is designed as an experience to test knowledge or tool use will be built using the assumption that the players should have some comfort with the domain.

CONCLUSIONS AND FUTURE RESEARCH

Conclusions

Through the evaluation and analysis of interviews with experienced escape room players, we can determine that cultural bias does exist in escape rooms and the majority of players

experienced a negative reaction to encountering cultural bias. From these results, we can derive two principal conclusions.

- It is difficult to predict which elements of culture, and therefore which elements of the escape room, players will experience difficulty with.
- Game designers are typically unable to recognize their own assumptions, and so will have difficulty recognizing the cultural biases in their escape room designs.

Both of the above issues have a common solution. The more preparation done in advance of opening an escape room, the more approachable a game will be. Preparation includes playtesting or beta testing each game with a variety of players of different ages, education levels, and socio-cultural backgrounds. Extensive playtesting will identify problem areas for different groups of players as well as identifying any biases that were inadvertently included by the designer. With the identification of these problem areas, the game can be improved to increase approachability for a larger audience, whether through increased environmental storytelling or through training game hosts to recognize where certain groups of players may have difficulty and how to assist players without diminishing the players' enjoyment of the game.

Online Escape Games

While we were analyzing our data, the Escape Room industry was hit by the impact of the 2020 COVID-19 pandemic. Escape Room companies had to shut down, and while many closed their businesses temporarily or permanently, some explored ways to take advantage of online video-based chat platforms to continue to offer access to their games remotely. An actor in the room with a camera would follow the directions of a team of players as they worked through the challenges. This allowed the escape room companies to still bring in some income, and allowed

players to access games around the world that would have previously required travel. For our area of study, this introduces a new area of relevance, as players were now encountering games created for different local cultures. This is now an area of research for us, as we are working on a similar study to this one of players who have played these remote rooms and encountered culturally biased challenges.

Design Implications

Another area of future research based off of this study are the game design implications when a creator wants to avoid a culturally biased game. This is important for the original goal of this research: to create a more fair worldwide competition for escape rooms. This is also important for rooms that serve high-tourist or multi-cultural areas, as it is more likely that the players will have a different cultural background than the designer. Finally, this is important for companies running remote escape games, as the players may be from a different culture.

Therefore, another future study we are developing involves design implications when trying to reduce cultural bias in games. Much like our resource already released for the creation of multimedia content for escape rooms (McDowell, 2019), our goal is to create guidelines for designers to follow to identify and reduce culturally biased elements in escape games. We recognize that it is impossible to remove all elements of cultural bias, especially in a narrative-based game, but if designers are trying to serve a multicultural player base, it is important to understand where games have been made unintentionally more challenging for players without the shared cultural background as the designer.

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