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# Peeking Behind the Locked Door: A Survey of Escape Room Facilities

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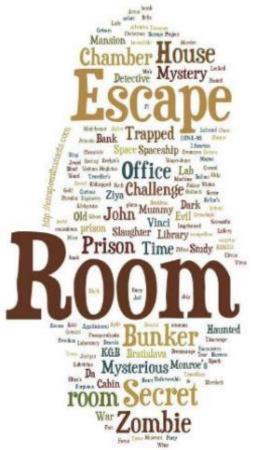
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Abstract: Escape rooms are live-action team-based games where players discover clues, solve puzzles, and accomplish tasks in one or more rooms in order to accomplish a specific goal (usually escaping from the room) in a limited amount of time. This paper presents the results from a survey answered by 175 escape room facilities from around the world about their facilities. The paper highlights different themes, demographics of players, room features, and other design patterns popular in escape rooms at the

facilities from around the world about their facilities. The paper highlights different themes, demographics of players, room features, and other design patterns popular in escape rooms at the start of 2015. Given the rapid growth and evolution of escape rooms, this paper serves to document the current state of this phenomenon.



Figure 1: The Great Escape Room (before) (used with permission).



## Introduction

"You have one hour to find the clues, solve the puzzles, and locate the key that will unlock this door. Good luck!"

Escape rooms are live-action team-based 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. The escape room experience starts with the players meeting their gamemaster, who

briefs them on what will be happening over the next hour and gives them the rules for the game. If there is a backstory, the players may watch a video or be given a passage to read. The door is closed and locked and a countdown clock begins.

Players explore the room, tentatively at first but then more aggressively as time goes on, looking everywhere for clues. There are usually numbers, symbols, or pictures on the walls but no apparent guide to understanding what they are there for. The first part of the experience is searching through drawers, boxes, pockets of clothing, and underneath and behind everything; well-communicating teams call out what they find and organize things that might go together. At some point, players will discover a puzzle and figure out how it can be solved; some puzzles have directions and others do not.

The solution to one puzzle will lead to something else – it may be a code for a padlock, the starting key for another puzzle, a door that opens to another room, a piece for a meta-puzzle, or it may be a red herring. The group of players continues to work on puzzles,



Figure 2: The Great Escape Room in Play (used with permission)

sharing information about what is found. If they are stuck, there is usually a way for a team to get a hint to help them continue. As the time ticks on, the puzzles become more complex, many times all feeding into a final puzzle which will provide the team with the key or code needed to open the door and escape. At the end of the game, the gamemaster leads the team through a debriefing process, answering questions and explaining puzzles if they have questions, and then the staff rushes to reset the room for the next team. An escape room facility may have multiple rooms, each with a different theme, so this process is going on simultaneously for many groups of players and gamemasters.

Escape rooms require teamwork, communication, and delegation as well as critical thinking, attention to detail, and lateral thinking. They are accessible to a wide age range of players and do not favor any gender; in fact, the most successful teams are those that are made up of players with a variety of experiences, skills, background knowledge, and physical abilities. As they are live-action games taking place in the physical world, they create opportunities for players to engage directly with each other in the same way that tabletop games do; players eager to look at something other than a glowing screen are flocking to games in the physical world for face-to-face engagement opportunities.

The purpose of this paper is to explore the current state of the escape room industry through a large-scale survey and to offer advice to escape room designers and facilities. Because the contents of escape

rooms are, by nature, kept a secret and it is a highly competitive marketplace, there are not resources publicly available to help those wanting to start or improve an escape room. A survey that combines responses from many different escape rooms is the first step in creating a public record about escape room facilities in a way that does not infringe upon the secrecy desired by the designers and proprietors of escape rooms.

# A Brief and Incomplete History of Escape Rooms

It is not the intention of this paper to present a detailed history of escape rooms, so a few precursors are presented as well as the genres of games from which escape rooms evolved. While Wikipedia (and the Wikipedia echo chamber) points to several rooms in 2006, the sources that Wikipedia points to for these facts no longer provide any information about these rooms; those in the escape room community have yet to discover any first-hand accounts or further details about these claims.

The earliest well-documented activity calling itself an "escape game" was from the publishing company SCRAP, known as the *Real Escape Game*. It was run in Kyoto, Japan, in July 2007 as single room game for teams of 5-6 players (SCRAP, 2007). Over the years, SCRAP has continued to run escape rooms, but has also become known for running a *Real Escape Game Event*, which is for hundreds or thousands of players in a large space. However, SCRAP's first game was an escape room, much as is seen today in the facilities who participated in this survey. Rooms grew rapidly in 2012-2013 first in Asia, then across Europe (with Hungary being a significant hub), and then over to Australia, Canada, and the USA.

There are numerous interactive media precursors to the Escape Room concept. As part of this survey, the owners of escape rooms were asked what their inspiration was to start an escape room. About 65% of the survey respondents said that their inspiration came from playing in or learning about another escape room; common organizations named were SCRAP from Japan, Parapark in Budapest, Hinthunt in London, and Escape the Room in NYC.

The rest of the respondents were not aware of other escape rooms when they started. Their inspiration came from a variety of sources. A few of them were inspired by adventure movies like the *Indiana Jones* series or horror films like *Cube*, *Saw*.

# About the Author



Dr. Scott Nicholson runs the Because Play Matters game lab at the School of Information Studies at Syracuse University. He is also a lifelong gamer, has designed two published board games (Tulipmania 1637 and Going, Going, Gone), is a co-author of Cthulhu Live (1<sup>st</sup> edition), and was the Scott behind Board Games with Scott, the first web-based video series about board games. He was a librarian, and now studies how games and play can be used for informal learning. He is designing an escape room for Fort Stanwix National Monument, an 18<sup>th</sup> century fort, in Rome, New York. More of Dr. Nicholson's writings and talks can be found at becauseplaymatters.com

More of them were inspired by prior forms of interactive media; exploring these sources paints a more robust history of the escape room phenomenon.

## Precursor 1: Live-Action Role-Playing

One game genre that feeds into escape rooms is role-playing games, and more specifically, live-action role-playing games. As the popularity of *Dungeons and Dragons* grew, gamers wanted to experience their tabletop fantasies in more immersive settings. In the 1980s, a number of national organizations, such as the *New England Role playing Organization (NERO)* and the *International Fantasy Gaming Society (IFGS)*, provided rulesets and scenarios for players to dress up in costume, arm themselves with foam-covered weapons, and engage in scenarios that combined role-playing, puzzle solving, and combat (Simkins, 2015). Some of these escape room precursors had players searching for clues and solving puzzles to escape from locked rooms made of tarp-covered frames out in the woods. *True Dungeon* took these concepts from live-action role-playing and created an event for Gen Con in 2003 where players worked through rooms solving puzzles under a time limit. Each player had a character, and fought monsters through a shuffleboard system, but there was no live-action combat. The focus was on the mental skills and using class abilities instead of roleplaying, and continues to be one of the most popular events at Gen Con (True Adventures, 2014).

#### Precursor 2: Point-and-Click Adventure Games & Escape-the-Room Digital Games

Another game genre in which escape room roots can be found includes interactive fiction games and it's graphical implementation, point-and-click adventure games. Text-based interactive fiction games, most popular in the 1980s, require players to explore locations, find and combine items, and solve puzzles by giving textual commands to a computer. As mice and computer graphics became commonplace, this underlying game concept transitioned into point-and-click adventures; these two-dimensional games required players to explore settings to locate items, combine these items in unusual ways to overcome barriers, solve puzzles, and occasionally engage in insult sword-fighting to continue the story and explore the world. *Myst* was a popular puzzle-based game that took these games into a rich 3-D space; some describe escape rooms as "Live-action *Myst*." One direction that the genre moved into was webbased games (and now mobile apps) where players were trapped in a room and had to discover and combine items to solve puzzles and escape. These games became known as Escape-The-Room games, and some of the creators of today's physical escape rooms were inspired by these digital games.

#### Precursor 3: Puzzle Hunts & Treasure Hunts

Another game genre that was an inspiration to escape room creators was puzzle hunts. In a puzzle hunt, players work in teams to solve a series of puzzles, many of which are paper-based or digitized versions of paper-based puzzles, which then lead to other puzzles, typically with a goal of solving a meta-puzzle that the other puzzles feed into. The puzzle hunt genre has been around for decades, with the MIT Mystery Hunt being one of the best known traditions where the prize for winning the Mystery Hunt is the honor of creating the hunt for the next year. There continues to be a growth in puzzle hunts, some of which center on pubs and the social experience while others provide incredibly challenging and complex puzzles. The puzzles in escape rooms are usually simpler than those found in challenging puzzle hunts, but the team-based experience of solving puzzles is the same. Many escape rooms are structured after puzzle hunts, but with a focus on physical puzzles in a limited space for a single team.

A related activity is the treasure hunt or Schnitzeljagd (in German), where players follow a series of clues in order to discover a treasure. These clues may be puzzles or riddles, and players work together to overcome the challenges and win the game. Modern versions of these treasure hunt games include geocaching, where players either are given GPS coordinates or must solve puzzles to discover coordinates and then, once at the location, search for a hidden box, and letterboxing, which is similar but starts with textual or multimedia clues instead of coordinates. The same combination of hunting and puzzle solving goes on in an escape room, but in a confined space.

#### Precursor 4: Interactive Theater and Haunted Houses

The growth of interactive theater runs parallel to the growth of escape rooms. In both cases, participants are invited to engage with their environments in an interactive space that allows them to take an active role in their entertainment. Some of the creators of Escape rooms mentioned *Sleep No More* and *Then She Fell*, two interactive theater experiences in New York City, as inspirations for their escape rooms. Haunted houses are closely related to these interactive theater experiences, as small groups of participants move from space to space engaging with actors and exploring a story. Many flock to horror-themed escape rooms that combine elements of haunted houses with puzzle hunts where players are trapped in the dark, taunted by chained-up zombies or shackled to walls. These lines will continue to blur with interactive haunted houses, such as *Trapped* at Knott's Berry Farm, where players taking on tasks and solving simple puzzles to find their way out of a haunted house.

#### Precursor 5: Adventure Game Shows and Movies

There have been televised game shows and reality shows that put players in situations where they have to work in teams to solve puzzles and escape a situation. One of the earliest shows from the 1980s in the UK was *The Adventure Game*, where small teams performed a series of physical puzzle-based tasks to get out of rooms that would fit perfectly in today's escape rooms (Labyrinth Games, n.d.). *Knightmare*, another series from the UK from the mid-80s, put children in teams where one player wore a helmet and wandered around in front of a blue screen and interacted with props and actors while teammates watched a rendered version of the activities and provided advice (Child, 2009). *Fort Boyard* and *The Crystal Maze* and were both team-based game shows started in the 1990s that combined

Themed entertainment industry

Escape

Rooms

Adventure game shows & movies

Interactive theater & haunted houses

physical prowess and mental agility (Virtue, 2015) but lost the narrative that the earlier shows relied upon.

These early game shows were a precursor to the reality shows that followed, starting with *Survivor* and *The Amazing Race*. Many of these reality shows had large-scale games and puzzles that players had to work together to solve, thus providing inspiration for escape room creators to develop the sense of spectacle that these shows provide. The popularity of these shows raised the cultural awareness of the activity of working together to solve a series of puzzles and accomplish tasks in a physical world.

Movies that portray adventures also have inspired some creators of escape rooms. Matt Duplessie (2013) was inspired to start *5Wits* by the *Indiana Jones* series of movies, as he wanted to create the opportunity for the

player to live the adventure. Other escape room proprietors pointed to horror adventures like *Saw* and *Cube* as inspiration for escape rooms, as players are trapped in a space and have to rely upon their wits to escape. In 2015, there was a traveling escape room designed to promote *Dig*, and there will be many such tie-ins in the future between different forms of media and escape rooms.

## Precursor 6: Themed Entertainment Industry

Escape rooms are at the intersection of games and themed entertainment, which creates a challenge for those planning and running escape room games as a business. Escape rooms are not the first commercial enterprises built around live-action puzzles. A few precursor businesses for escape room-like activities were *Entros*, a restaurant founded in Seattle in 1993 but no longer open, where diners participated in mystery games that took them throughout the restaurant, solving physical puzzles while others continued to dine (Ament, 1994). *5 Wits* is a US franchise which first opened in 2003 and has teams working together to solve physical puzzles in an immersive environment within a certain amount of time to escape to the next room (5 Wits Productions, 2012). *MagiQuest*, a feature of the Great Wolf Lodge franchise where players go on a scavenger hunt for items powered by a book of riddles and an electronic wand, debuted in 2006 (Creative Kingdoms, 2012).

Many escape rooms were started independently of other rooms and the creators were instead inspired by one of many different gaming genres and experiences.

It is important to recognize that there was not a single escape room that started the phenomenon, but inspiration from a variety of genres such as live-action role-playing, point-and-click adventure games, puzzle hunts, interactive theater, and haunted houses that created the spark in someone's head to create an escape room.

# Demographics of Survey Respondents

The primary method of contacting escape room facilities was either through e-mail address or Webbased contact forms. The *Escape Room Directory* (<a href="http://escaperoomdirectory.com/">http://escaperoomdirectory.com/</a>) was the starting point, and then web searching and other directories were used to locate other facilities. Out of 404 facilities contacted with the unsolicited request for the survey, 175 (43%) eventually filled out at least some of the survey. This survey was presented in several stages; responders were told that they could quit the survey at any time, so the number of people who answered any specific question may be different than the number of people who started filling out survey. The first stage of the survey contained questions about the escape room facilities, and 175 facilities participated in this survey; Appendix A lists the names of the facilities who wished to be recognized for their participation in this main study. The second stage of the survey, which was repeatable up to 5 times, asked respondents to discuss a specific escape room; 124 different facilities described 224 different escape rooms. After the primary survey was closed, several other questions emerged from discussions with survey participants, so a follow-up survey was sent to survey participants; 61 participants participated in the follow-up survey. Table 1 shows the breakdown of participants by continent.

In what continent are you located?	Count	Percentage
Asia	18	10%
Australia	10	6%
Europe	91	52%

Multiple	5	3%
North America	44	25%
South America	1	1%
(blank)	6	3%
Grand Total	175	100%

Table 1: Survey participants by continent

This breakdown demonstrates the English-language bias in this survey. There are hundreds of escape rooms in China and Japan, but most of the responses from Asia are from Singapore or Malaysia. In fact, throughout the survey, when the results refer to Asia, they are referring primarily to Singapore and Malaysia. I expect that since my request for the survey response was in English and was using an English-language survey instrument, the language barrier prohibited getting a response from the Chinese and Japanese facilities that were contacted. This represents a bias in the sampling method, and therefore, a bias in the results.

The "Multiple" responses are from franchises that listed locations that were from different areas. Since there was only one response from South America, and one goal of this survey is to not reveal secrets about any specific location, it is grouped with those from North America from this point onward.

# Demographics of Players

One of the draws of Escape rooms is that they are appealing to a wide portion of the population. Not only are they appropriate for groups of friends, they also appeal as an activity for families and other intergenerational groups. Proprietors were asked about the demographic breakdown of the primary features of their player groups. About 37% of groups are groups of players over 21 about 14% of players are families with parents and children, while 19% are groups of players under 21. Corporate clients make up about 19% of the customers for escape rooms, and 11% of groups are couples out on a date. That said, in Asia, the Escape rooms are more likely to attract groups of only younger players (about 36% of users) than groups of adults (25%).

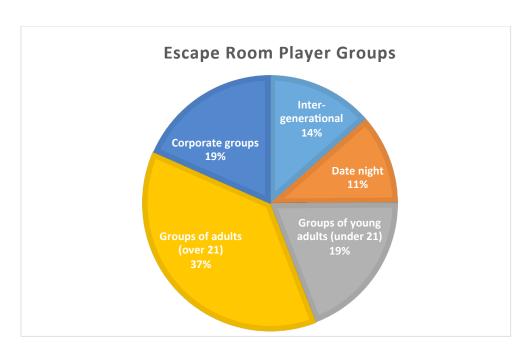


Figure 3: Primary classification of Escape Room player groups

There is considerable discussion about genders and games. Unlike some forms of gaming, escape rooms draw in players of both genders relatively equally. About 70% of the groups that play through rooms are of mixed genders, and the remaining groups are equally split between all male and all female. In Asia and Australia, however, gender balance is even more the case, with 85% of all groups being of mixed genders. Throughout this study, questions about gender continued to return the result of an relatively equal balance of male and female players.



Figure 4: Gender Breakdown of Player Groups

This gender balance is represented in the staff that work at Escape rooms, as about 55% of the staff at Escape rooms are male. Again, this is a pleasant surprise, as the games industry and game shops are

well-known for being staffed primarily by males. Having female staff members at a facility will make it more likely that female players will feel welcome.

# **Descriptions of Facilities**

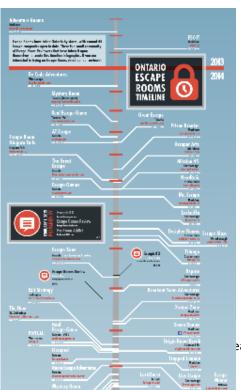
About 24% of the Escape Room facilities offer one single room, another 27% offer two different rooms, and 18% offer three different rooms. The remaining facilities offer more rooms. The facilities in Asia are more likely to have more rooms, with 66% of escape room facilities in Asia offering 4-6 different rooms. This may be reflective of the significant number of survey respondents from Asia being from Singapore and Malaysia. Those facilities from Asia answering the survey were are also more likely to be located in large indoor shopping malls than facilities other continents; 42% of Asian responders were located in a mall. As a point of comparison, only 6% of all respondents were located in a large shopping mall, while 57% are located in single buildings shared with other tenants. If an escape room is located in a shopping mall, it needs to have a variety of rooms to appeal to the wide demographic groups that walk by the mall storefront; therefore, the higher number of rooms is required to raise the chance that a room will be appealing and available when a potential customer walks by.

Some Escape rooms are in interesting locations, such as a

- Barn with a western town look (Escape Maze, Peterboro, Ontario),
- Former military complex (Room Escape Amsterdam),
- Old neglected building (Breakroom, Vilnius, Lithuania),
- An old stock exchange building (Sherlocked Mystery Experiences, Amsterdam), and
- An Escape Igloo at a ski resort (Enigmarium Escape Room, Ljubljana, Slovenia, 2015).

On average, an Escape Room facility is open about 60 hours per week. Facilities in Asia and Europe are more likely to be open longer, with an average of about 73 hours per week, while facilities in North & South America are open fewer hours, with an average of 40 hours per week.

#### Escape Room Competition, Costs, and Team Size



Escape rooms are a competitive market. Some proprietors who were first into a small market complain about a rush of other rooms opening up in the same small market, charging lower prices and hurting business. Numerous accusations have arisen of one company stealing the puzzles and gameplay from another room. This mirrors what is going on in the mobile gaming market; one person spends years crafting a game, and a clone comes out days later. Because game mechanisms are not covered under intellectual property laws (at least in the United States), game designers have always faced this frustration. That said, this freedom does create the ability to take a mechanism created by one person and improve upon it, thus allowing for a rapid evolution in games that would not be possible if game mechanisms were protected.

This phenomenon can be seen in the table below. In Asia, where escape rooms have been established the longest, half of those

eased in 2015 for comments. This is a living document and may change.

surveyed believe the market for escape rooms is oversaturated. In Europe, half of those surveyed believe there are an appropriate number of escape rooms. North & South America has the highest number of proprietors who say they are they are only escape room in the area. This is certain to change within a few years.

	Asia	Australia	Europe	North &
				South
				America
The market is oversaturated in the area.	50%	43%	17%	12%
There are a few competitors in the area,	8%	29%	23%	29%
but there is room for more Escape Room				
facilities in the area.				
There are an appropriate number of	33%	14%	50%	32%
Escape rooms for the area.				
We are the only Escape Room in the area.	8%	14%	8%	24%
(blank)	0%	0%	2%	3%

Table 2. Perception of market saturation in early 2015.

This infographic, created by three Escape Room blogs from the Toronto area (EscapistTO, Escape Games Review, and Esc Room Addict, 2015) demonstrates the rapid growth of escape room facilities across Ontario, Canada starting with the first one in October 2013 up through the 45<sup>th</sup> facility in January 2015. This is not unusual; similar patterns of growth have been reported in other cities where the escape room phenomenon has caught on.

#### **Escape Room Costs**

As Escape rooms are a new and competitive market, many customers don't have an expectation as to how much a room should cost. The two most common models are charging per player (55%) or charging per team (39%). There are also hybrid models, where there is a base cost for the room plus an additional fee per player or banded models where, for example, there is one price for 2-4 players and another price for 5-8 players.

In addition, because it is a new market and many proprietors have opened Escape Rooms in a market without being aware of other models, price structures vary. After the first escape room opens in an area, it sets a model which many follow for that market. This can be seen in the table below; all of the Asian facilities that responded charge per person, while in Europe, it is more common to charge per team.

Figure 5: Ontario escape rooms timeline

Do you charge per person or per team for an experience?	Asia	Austra lia	Europ e	North & South Americ a	Ove rall
Per Team	0%	29%	63%	12%	39%
Per Person	100	71%	29%	85%	55%

	%				
Other	0%	0%	8%	3%	5%

Table 3. Methods of charging for escape rooms.

When converted to USD, the overall average cost per person to play in an escape room is \$23.68. In most markets, there are rooms that charge much less than that (\$5.00 in Asia, \$12.00 in Europe and \$13.00 in North & South America). For the facilities that charge by the team, the average cost to play the game is \$74.42 per team. European rooms come in below that average, while rooms on other continents are higher. However, after taking that cost and dividing it by the GDP per capita for the country in which the escape room is located, the Asian rooms (per person) and the European rooms (per team) come out as more expensive when considering local economies (World Bank, 2014).

Cost to play / GDP per capita	Per Player	Per Team
Asia	0.09%	NA
Australia	0.05%	0.14%
Europe	0.06%	0.30%
North & South America	0.05%	0.18%
Overall Average	0.06%	0.29%

Table 4. Average percentage of GDP per capita of room cost.

#### Escape Room Team Size

To be able to compare the rates by team and by player, it is important to know the team size and how teams are put together. In about 60% of the escape rooms, each group of players is in their own room; of these facilities, about two-thirds of these facilities charge by the player and one-third charge by the team. In the other 40% of escape rooms, players are charged individually, and small groups of players are put together in the same room.

These models create very different player experiences: when players are in a room with only people that they already know, they will be more comfortable and are more likely to be effective as a team. If players are put into a room with strangers, there will be a period of time as players have to learn to engage with each other. This challenge is made more difficult in countries where there are different languages commonly spoken or in a high-tourist area; if members of a team are not able to communicate well, it can create a frustrating experience.

Players in Asia and Europe are much less likely to be put into rooms with strangers; only about 20% of responding facilities from these continents put small groups of players together on a team. In North America, it is a much more common practice – about 60% of responding facilities place small groups of people together. This may be because of the language issues or because of cultural issues of how accepting players would be of playing a game with strangers; from a capacity standpoint, it makes sense to put multiple groups into the same room, but from a player experience standpoint, this might drive people away if this is not something that would be acceptable by people in the local culture.

The average team size overall is 4.58 people. Teams in Europe are the smallest, with an average of 3.98, while teams in North & South America are the largest, with an average of 6.07. Overall, the average minimum size per team is about 3 people and the average maximum team size is slightly over 7 people. The smallest minimum team size reported was 2 and the largest team size reported in Europe was 7, in

Asia was 10, and in North & South America was 16. Looking at team size per continent tells more of the story. Escape room teams in Europe and Australia were smaller and Asia and the Americas are larger, as can be seen in the figure below.

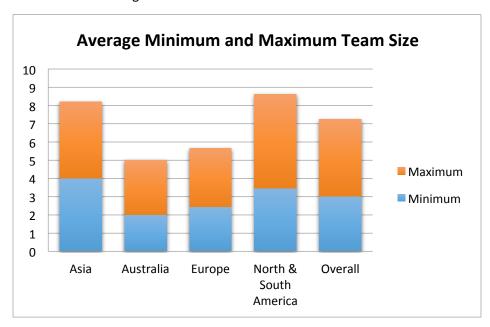


Figure 6: Average Minimum and Maximum team size

# But What's Behind the Door?

The mystery of what is behind the entry door in an escape room creates incredible tension and giddiness in players. When waiting for their game, the tension in the air is high; people are nervous and quiet, as they don't know what to expect. Once in the room, teams start slow, figuring out their surroundings, but before long a burst of excitement takes over and the team members are running from place to place, calling out discoveries, and hunched over puzzles in small groups. As they leave the game, the excitement level is high, and many rooms allow for time for the players to talk to the staff about their experience before taking a photo of the team. The discussion of the shared experience continues long after leaving the facility; in the live-action role-playing community, this shared discussion of an activity is known as froth, and is what a good escape room creator seeks to generate (Howitt, 2012).

In the survey, escape room proprietors described between one and five games from their facility. One hundred and twenty four facilities described a total of 224 rooms, with most participants describing one or two rooms (and a hearty thanks to the 10 facilities that described either 4 or 5 different rooms!) The breakdown of rooms by continent can be found in the table below.

Country	Number of Rooms Described	Percentage of all Rooms Described
Asia	29	13%
Australia	17	8%
Europe	108	48%
Multiple	8	4%
North & South America	59	26%
(blank)	3	1%
Grand Total	224	100%

Table 5. Breakdown by continent of games described on the survey.

#### Game Themes and Narratives

For purposes of this discussion, the terms "themes" and "narratives" will be used in specific ways. For the integration of theme and/or narrative, there are several levels:

- Escape rooms can be a collection of puzzles and tasks without a theme or a narrative.
- Escape rooms can have a theme, such as "Escape from the Haunted Basement" or "Deep Space Desertion", where the decorations, audio track, and props in the room match up with the theme, but there is no overarching story. This would be akin to being on a movie set without a script; players can choose to add in their own story, but there isn't a narrative provided. The puzzles could stand independently outside of the room and do not rely upon the theme.
- Escape rooms can have a narrative and the players are placed into a role into the narrative through some type of a pre-game video or story presented by the game master. The goal may tie into this narrative, but the puzzles done throughout the room do not necessarily move the narrative can and can stand apart from the narrative.
- Finally, escape rooms can have a narrative, and craft the puzzles such that the puzzles are part of the storytelling and move the narrative along. The puzzles cannot be separated from the narrative, as they are part of the story.

The figure below presents how many games fell into each of the above categories. Rooms described from North & South America were more likely to have a theme but no narrative than the other categories, while 52% of the rooms from Asia had puzzles integrated into the story.

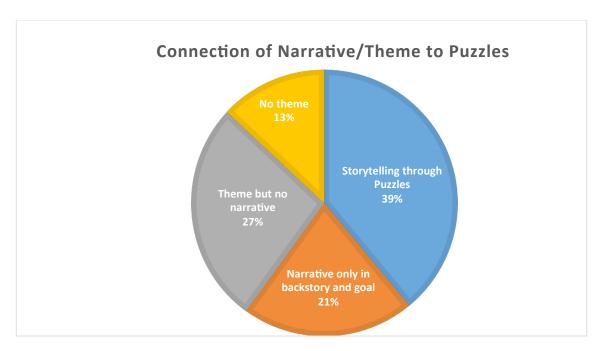


Figure 7: Integration of Narrative/Theme to Puzzles

It is important to note that none of these are the "right" design path. Some players of escape rooms are simply wanting to work on puzzles with friends in the physical world, so the narrative can get in the way. For some players, having a theme can add to the ambience and fun, but they are not really wanting listen to a detailed backstory; they want to focus on puzzles and tasks. On the other hand, some players are seeking a strong narrative experience and want to have immersion; these players get frustrated when the puzzles or the game master takes them out of that narrative space. Different game styles are best for different player types. Designers need to consider their goal, work to meet that goal, and then ensure that the games are marketed and described in a way to help players choose the best room.

Facilities also reported about the theme of specific rooms; they could choose more than one from the list as the themes might overlap (see the table below). Horror themes are more popular in Asia, with 24% of the reported rooms having a Horror theme. The most popular theme in Europe is a specific time and place from the last century, while the rooms from Asia and the Americas are more likely to be set in the modern era.

	Overall
Modern Era (2000-2015)	25%
Specific place and time (1900-2000)	24%
Other	16%
Specific place and time (1700-1900)	13%
Horror	13%
Fantasy	12%
Science / Laboratory	12%
Abstract: There is no theme	10%
Future / Technological	7%

Military	7%
Toy Room	3%
Cartoon/Anime	1%
Steampunk	1%
Seasonal (Christmas, Halloween, Easter, etc.)	1%
School	0%

Table 6. Themes/Genres of escape rooms

After learning about themes, rooms were then asked to select the overarching concept. As can be expected in a survey of escape rooms, the most common concept was to escape a room, with 16% of the rooms having no other narrative other than "Escape the Room" and 30% of the rooms about escaping a specific place (which would bring a theme into the room). After this primary concept of "Escape something", the concepts were widely scattered, and can be seen in the table below.

	Overall
Escape a Specific Unpleasant Place (Dungeon, Prison, Preschool, etc.)	30%
Abstract: There is no overarching narrative other than "Escape the Room"	16%
Investigate a Crime or Mystery	9%
Engage with the supernatural	8%
Solve the Murder	5%
Defuse the explosive device	5%
Be an Adventurer	4%
Gather Intelligence or Espionage	4%
Carry out a Heist	4%
Other	3%
Find the Missing Person	3%
Help Create Something (such as a cure, a potion, etc.)	2%
Military Operations	2%
Free another person or animal	2%
Survive!	1%
Carry out an Assassination	0%

Table 7. Concepts/Narratives for escape rooms

Connecting the narrative themes to gender preferences leads to some interesting observations (see table 8). Males are more interested in games focused on Military Operations, Escaping an Unpleasant Place, Engaging with the Supernatural, Solving the Murder, and Finding the Missing Person. Females are more interested in Freeing another Person or Animal, Carrying out a Heist, and Abstract Rooms without a Narrative. This is useful for Escape Room facilities with multiple rooms, in that they can ensure they have a variety of narratives available to engage both male and female players.

	Females are more interested in this room.	Males and females are equally interested	Males are more interested in this room.
Military Operations	0%	60%	40%
Defuse the explosive device	18%	64%	18%
Free another person or animal	25%	75%	0%
Abstract: There is no overarching narrative other than "Escape the Room"	16%	76%	8%
Escape a Specific Unpleasant Place (Dungeon, Prison, Preschool, etc.)	4%	78%	18%
Engage with the supernatural	0%	80%	20%
Solve the Murder	0%	83%	17%
Find the Missing Person	0%	86%	14%
Carry out a Heist	13%	88%	0%

Table 8. Concepts/Narratives for escape rooms where there was a gender preference

Many narrative paths listed above do not necessarily make sense with a story element of "you are trapped in a room and must escape." This means that to fit the escape room name, the designer must add a layer onto the game of the players being trapped in some way and needing to escape. Facilities were asked in what percentage of the games were players actually needing to escape the room as part of the narrative. Overall, about 70% of escape room games require players to actually escape the room as part of the winning condition. This means that 30% of the games in escape room facilities aren't actually about escaping rooms. For the Asian respondents, however, this percentage was much higher – 96% of games in Asian escape rooms require players to escape a room, while in Australia and the Americas, only about 60% of escape room games are about escaping a room.

## Puzzle Organization

Most rooms require players to search for clues and puzzles and then solve those puzzles. Some rooms also have tasks, which are activities where the players know what to do and have to succeed at the task (like a laser maze). There are different ways that puzzles can be organized. They can be presented individually, where each puzzle feeds directly into a large meta-puzzle or sequentially, where one puzzle must be solved to unlock what is needed to work on the next puzzle. Examples of these forms can be seen in the figure below, where the circles are puzzles and the rectangles are either meta-puzzles, locks, or other victory conditions for a stage of the escape room.

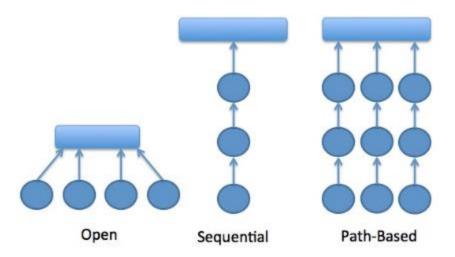


Figure 8: Basic Forms of Puzzle Organization

The most common method of organization (45% of the described games) is path-based, where a team is presented with several different paths of puzzles at the same time. Each path of puzzles is a sequence and leads to a final result. Each of these results is needed for a meta-puzzle, which will then unlock the next stage of the game or the victory condition. The advantage to this structure is that different members of a team can work on different puzzle paths at the same time, but by presenting a subset of puzzles, the designer can start with simpler puzzles and then move into more difficult puzzles as the players grow in confidence and familiarity.

The second most common method of organization (37% of the described games) is sequential, where the players are presented with one puzzle, the answer of which will unlock the next puzzle in the sequence, and the final puzzle allows players to win the game. This works better in smaller rooms or when puzzles require the entire team to work together in a series of linear tasks. This method of organization was more popular in described games from Asia (62% of games) than the path-based organization described above.

Much less common (13% of the described games) were open structures, where the players had the ability to take a large number of puzzles in the room at the same time. As they solved puzzles, they got pieces of the final solution. This is more difficult to use when creating a scaffolded, flow-based experience where the game gets more challenging as time goes on.

There are some facilities that use a hybrid model, where the team may start with a few puzzles presented in sequence, and then this opens up into a path-based model as the team gets into the flow of the room. It could also go the other way, where it starts with a open or path-based model, and then the puzzles become fewer but more challenging at the end of the room. Another hybrid model is a pyramid structure, shown in the figure below, which starts with multiple path-based puzzles, each of which feeds into a meta-puzzle that starts a sequence, which creates another path-based structure leading to a meta-meta puzzle.

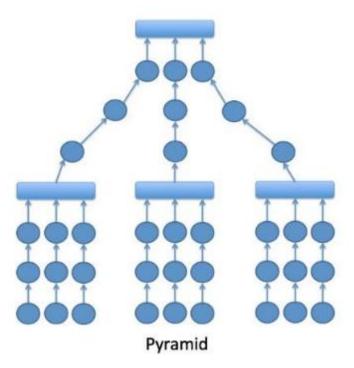


Figure 9: A Pyramid puzzle structure

The reality is that many puzzle rooms have much more complex structures. The figure below shows a map of puzzles and how they relate created by David Staffell and David Middleton for Bewilder Box Brighton, UK. Each star represents a starting point on a puzzle chain, and the connections show how results from multiple puzzles come together. This model is more realistic for how puzzles connect together in many rooms.

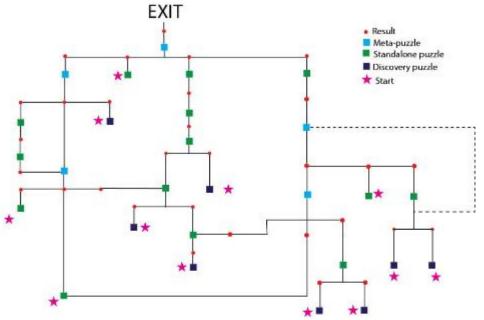


Figure 10: Complex puzzle structure used in Bewilder Box Brighton (http://www.bewilderbox.co.uk)

# Puzzle Types

The next area of exploration is the specific types of puzzles in each room. This is the topic that was most sensitive for facility owners, as it is their goal to protect the content of the games. The table below lists many puzzle types, sorted by how many rooms were described that contained puzzles of that type.

A running joke used in adventure video games is "start to crate," which is how long a player must play a game before finding a breakable object (Old Man Murray, 2000). The equivalent running joke in escape rooms could be "time to blacklight", as many rooms turn to blacklights in order to add hidden information in a room. Evidence for the popularity of blacklight-based puzzles is that light is the 3nd most popular puzzle type.

Each continent had a type of puzzle that was noticeably more favored than it was in other areas. Asian escape rooms were more likely to have counting puzzles (62%), rooms from North & South America were more likely to have players assemble a physical puzzle than on other continents (58%), and rooms in Europe were more likely to have players search for objects in images (56%).

What puzzle types are in the room?	
Searching for physical objects hidden in the room	78%
Team Communication	58%
Light	54%
Counting	53%
Noticing something "obvious" in the room	49%
Symbol substitution with a Key (such as looking symbols up in a book)	47%
Using something in an unusual way (Out-of-the-box thinking)	47%
Searching for objects in images	43%
Assembly of a Physical object (such as a jigsaw puzzle)	40%
Algebra and other Mathematics	39%
Pattern identification (such as visualizing a shape in a set of dots)	38%
Riddles	37%
Ciphers without a Key (such as letter substitution)	35%
Hearing	26%
Mirrors	26%
Abstract logic (such as Sudoku)	22%
Research using information sources	20%
Strategic thinking (such as Chess)	20%
Hand-eye Coordination (such as shooting a target)	17%
Rope or chains (such as undoing complex knots)	16%
Traditional Word Puzzles (such as crosswords or word search)	14%
Mazes	14%
Physical Agility (such as a laser maze)	13%
Touch	12%
Knowledge of facts not provided in the room	11%
Shape manipulation (such as a matchstick puzzle)	11%
Liquids	9%

Social engagement with actors	7%
Physical engagement with actors	4%
Smell	3%
Taste	1%

Table 9. Types of Puzzles in escape rooms

# Other Aspects of the Rooms

#### Non-Player Characters

About 10% of games that were described used an actor or actress in the room as a non-player character (NPC) to interact with the players. A few of the games (2%) used an NPC to provide the players with the backstory and goal for the game, but more games did this with a short video or piece of text. Other rooms (4% overall, but 14% of the rooms from North & South America) had an NPC in the room to help the players along. Another role for a NPC is to serve as an adversary and difficulty control for the teams (4% overall, but 8% of the rooms from North & South America). There is an escape room franchise – Room Escape Adventures – that is well-known for their *Trapped in a Room with a Zombie* game. In this game, there is an NPC made up like a zombie chained to the wall. Every five minutes, the chain grows longer, and if a player is touched by the zombie, that player can no longer move around the room (Bucket List Productions, 2015).

#### Computers in the Rooms

Instead of having a human non-player character, rooms may have a computer that the players interact with. This computer can be used in several ways. It can be used as the platform for a puzzle that the players must solve. It could also be used as a way to interact with the players, responding to commands and requests. This computer can either be a program that is designed ahead of time to respond to players' commands (like an interactive fiction or point-and-click adventure game) or the computer can connect to a gamemaster on the other side playing the role of the computer or someone the players are chatting with.

Having the computer does take away from the physical nature of the escape rooms. A computer creates a situation where one player will be sitting down in front of a screen, and that person will no longer be in the same mental space with the rest of the players. Overall, about 70% of described escape room games are completely physical activities. Games from Europe were less likely to be purely physical (58%) while games described from Asia were more likely to be pure physical experiences (86%). If there was a computer, most of the time it was used to facilitate puzzles for the player, but occasionally (5% overall, but 9% of games from Europe) it would be used to create a virtual space where the players must enter as part of the challenge. Because European rooms are typically smaller than rooms in other areas, computers help them to add puzzles and layers that they can't do as easily in a physical space.

#### Different Physical Spaces

When referring to a single game, the term used is an "escape room" in the singular; however, the reality is that most escape rooms have multiple physical spaces that the players work through. For example, the players may start in a secretary's room, which has another door leading to an office. Within that office may be a bookshelf that reveals another area. These physical spaces create different stages of the game, and the designer can use this technique to create an increasing flow of complexity in the game.

The players start in one room with a few puzzles, and solving those puzzles allows them access into another space with more complex puzzles.

Only about 30% of escape rooms are a single physical space, although this is much higher for rooms in North & South America (48%). About 60% of escape rooms described have two or three different physical spaces. The number of rooms with more than that drops off quickly, although one room in Europe has nine different physical spaces the players move through!

#### Safety Concerns and Locked Doors

As escape rooms are a relatively recent phenomenon, there have as of yet not been any accidents reported that were made worse because the players were locked in a room. While most of the rooms are monitored by a gamemaster, during a fire or other disaster the gamemaster may not be able to get to the door to unlock it. When the facility is monitored by only a single staff member, if something were to happen to that person the players would not be able to get out of the room. This has caused some challenges for escape rooms getting insurance; in fact, one proprietor reports that they had to have their facility classified as a prison for insurance purposes.

As seen in the table below, in about 30% of the responding facilities, the players are actually locked into the room and have no way to let themselves out; this poses a significant safety concern. Some proprietors state that this is what the players signed up for – to be locked in a room – but if there is a single well-publicized incident, it could be bad for the escape room industry.

The most common solution, as seen in 37% of the facilities, is to provide the players with a way to exit the room in an emergency, such as a key for a mechanical door or a push button for a door lock powered by electricity (which would then unlock if the power went out). In another 22% of the rooms, the door is not actually locked, so players can leave if they need to; this percentage is higher for North & South America (36%) and much higher in Australia (67%). Another solution is to provide a secondary exit that the players can access. In all of these cases, the safety mechanism should be pointed out to the players with the caveat that if they use this mechanism to leave the room, they have lost the game.

Is the door actually locked? Can players leave the room without a staff member present?	Asia	Australia	Europe	North & South America	Grand Total
The door is not actually locked, so players can walk out at any time.	0%	67%	4%	36%	22%
There is a key or other mechanism that players can use to let themselves out of the room.	80%	0%	43%	29%	37%
There is another exit to the room that players could use if needed.	0%	33%	9%	14%	12%
They can not. A staff member must let players out of the room.	20%	0%	43%	21%	29%

Table 10. Actual status of the "locked door" in escape rooms.

# The Role of the Gamemaster in Escaping the Room

#### **Giving Hints**

One element from live-action role-playing games that is commonly seen in escape rooms is a gamemaster. Like in a role-playing game, the gamemaster's job is to ensure that the players have a fair experience, that the physical puzzles function as planned, and in most cases (82% of the time), provide help to the players when they are stuck or frustrated. This is either done through monitoring the players via video (76% of the time) and/or being in the room to engage directly with the players (16% of the time). The gamemaster also monitors the room to ensure the players do not damage to the room or need emergency assistance. Only 5% of the facilities reported that nobody is monitoring the room during the game.

Being a good gamemaster is a challenge akin to being a good teacher or corporate trainer. The best teachers allow students to engage with problems, explore, learn, and intervene only when it is needed to avoid students being overly frustrated. A good gamemaster needs to understand when players need a hint and when they need to be left alone to continue to work, as it is very frustrating for players to be on the cusp of a breakthrough and then to have that moment taken away by a poorly-timed hint.

The methods for distributing hints vary widely. In 23% of the facilities, players are not allowed to request hints; most of the time, this is because the gamemasters are monitoring the players and will offer suggestions when the gamemaster deems it appropriate. The most common hint policy, found in 42% of the facilities, is that players request hints as they need them. This may be done with a buzzer or a knock to request the gamemaster to come into the room, could be done through a walkie-talkie or microphones in the room, or could be done digitally via a computer. Proprietors report that even though players may have the ability to request hints, many do not and instead suffer in frustration, eventually leaving the room in a bad mood. In another 23% of the facilities, players can request hints a set number of times; typically, under this policy, teams were allowed to request 2 or 3 hints. Some rooms impose a penalty for each hint, such as taking time away from the team, adding time to the final score, or not allowing teams to be eligible for the leaderboard.

There were some interesting outliers for the hint systems. A few facilities (3%) would provide no help at all to teams. Some facilities have a timed hint system that is automatic to ensure teams are on the right track while other have a gamemaster come into the room every 10 minutes to check on progress and offer hints. One facility required teams to wait for 30 minutes before they were able to request hints, and another required the players to find certain items in the room and exchange them for hints.

#### Success and Failure

While the overall average success rate from the survey was 41%, that doesn't paint the whole picture. Different rooms have widely different success rates, as seen in Figure 11. Reported rates from North & South America (26%) and Asia (33%) were below that average, while rooms from Europe (52%) were above the average. Most facilities are open in disclosing their success rates, as that can help a team choose a room that matches their desires. Some players want the challenge of taking on a room that only 10% of others escaped from, while others seeking a more social/casual experience will want a room with a higher escape rate.

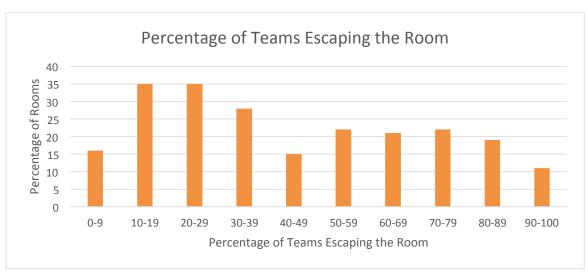


Figure 11: Percentage of Teams that Escape the Room

These values are deceiving, however, in that the gamemasters in many of these rooms give hints. In theory, the harder that a game is supposed to be, the stricter the gamemaster can be in giving out hints. This can be seen in the correlation between the reported level of mental challenge in rooms and their average completion rate in the table below.

Reported level of Mental Challenge	Average Completion Rate of the Room		
Low	61.7		
Medium	48.5		
High	36.3		

Table 11: The average completion rate for different difficulty levels.

In most video games, if players fail, they are given a chance to learn from their mistakes and try again. Most escape room games that are based on puzzles are not designed to be replayed; this is something that may change as technology-aided rooms are able to create dynamic puzzles for each team. There are different procedures that facilities use when players do not escape the room. The most common procedure, found in 68% of the facilities answering the survey, was that they talk the team through the rest of the puzzles in the room. The rest of the facilities are fairly evenly split (about 8% each) between talking the team through the current puzzle they are stuck on, answering questions but not providing a solution, or talking the team through the rest of the puzzles only if they are close to finishing the game. A common disclaimer added to this procedure was "if we have time," so if there is another team coming soon, players are most likely to be escorted out of the room so it can be reset.

#### Debriefing

A critical component of corporate training is debriefing, as it helps take the participants from where they are emotionally and mentally back into the "real world." It is similar to the role of a cool down after an exercise; it creates time for a transition between two very different states. Because escape rooms are high-stress environments, it can help participants to have a better experience if they have the chance to talk about their feelings, discuss the game with their gamemaster and other players, and transition out of game back into reality. The activity should be a time when the players have a chance to talk about

their emotions and ask questions, and it can be very beneficial for escape room designers and gamemasters to hear the players' thoughts about the game experience.

Most facilities (73%) have figured out the importance of debriefing after the game and schedule debriefing time into the experience, although only 40% of Asian respondents scheduled a debriefing time. Another 17% will talk to the players after the game is over if there is time, but they do not schedule time specifically for a debriefing.

### Designing the Rooms

Most facilities (83%) reported designing their own rooms, and another 8% have some original rooms designed in-house and some rooms that have been designed by others. Designers are evenly split on the use of red herrings; about half of them use false clues and trails in the room to confound the players, and about half of them work to not include any red herrings in the rooms. One designer said that they felt red herrings could create a bad experience for a player who spends considerable time on a puzzle or a path that is not important for winning the game. The reality is that players will take anything in the room as being important, so that even those rooms not attempting to use red herrings as a design choice still have players attempting to pursue the deep meaning of something that is just a decoration.

Escape room designers reflected upon what were their challenges in creating a room. The table below lists some of the challenges in creating a room and what was difficult. The survey contained a five point scale, so the percentages below reflect how many people rated the task as the most difficult level of Very Challenging on the 5-point scale. One of the great surprises for many proprietors is how much damage players do to a room during a game. Thinking about props that can't be damaged easily and that can be replaced when they are damaged is a lesson that many proprietors learn once they open the room to the public. Playtesters are gentle with room elements, but the general public (especially when fueled with some social drinking before coming to the room) can be very destructive.

How challenging are each of the following elements in creating escape rooms?	Very Challenging	
Balancing the Difficulty of Puzzles	47%	
Puzzle Creation	46%	
Creating Room Elements the Won't Be Destroyed Easily	43%	
Integrating the Puzzle and Narrative	40%	
Getting the Timing right	34%	
Creating room elements that can be easily reset	21%	
Developing a Narrative	21%	
Playtesting the Rooms	16%	

Table 12: The challenge in designing escape rooms.

# Learning Outcomes in the Rooms

While most of the games described here were for-profit games, about 30% of them had learning outcomes designed into the games, either as a recreational game with educational opportunities (22%), or as an educational escape room in a few (8%) of the facilities.

The most common learning outcome reported, which is common to all team-based escape games, is teamwork and communication. Successful teams work together, communicate well, and use delegation

to tackle the challenges in the room. Because of this, there are many escape rooms that market their services as team-building activities for corporate clients.

A number of rooms taught people about history, geography, and other culturally relevant topics. Some rooms took advantage of an interesting story that is of local interest and use the room to help players learn more about it. Some examples include the Ontario Gold Rush of 1866 (Escape Maze in Peterburough, Ontario), the fall of the Berlin Wall (Make a Break Berlin), the relevance of the structure in which the escape room was located such as a stock exchange (Sherlocked Mystery Adventures, Amsterdam), or the activities of political leaders (Cuban Crisis, Escapology, Orlando).

A few rooms used concepts of science such as astronomy and chemistry. Other rooms required players to engage with concepts from literature, such as folk tales, Sherlock Holmes, or Shakespeare. As many rooms use different forms of encoding messages, players may have an opportunity to learn how to translate semaphore, Morse code, braille, or cipher systems used over time.

There are a few museums that have explored escape rooms. *Museum Escape: The Polar Domes* was a pop-up escape room produced by Rosie Amos from the Polar Museum and Nicola Skipper at the Sedgwick Museum, both part of the University of Cambridge (UK). In The Polar Domes, the players are finding the hidden research of a polar geologist who is afraid that her work is being suppressed by others (Amos & Skipper, 2014). *Memori* was a pop-up escape room run at the State Library of Western Australia and designed by Games we Play and Excalibur productions that had players exploring stories from Western Australia history (Memori, 2014). The escape room concept, as a locative game where the physical space is important, is ideal for places of informal learning that emphasize a physical location.

# Conclusions and Recommendations

## Allowing the Players Choice in Escape Room Policies

Because Escape Rooms appeal to a wide variety of different demographic groups, allowing players choices about the policies and rules governing their gameplay can make it more likely that a player will have an engaging experience. Video games used to offer a single experience; every player would face the same challenge. As video game design concepts matured, however, the addition of variables allowed the player to set some of the constraints around a game experience. Now, the setting of a difficult level in a game is expected so that casual players can enjoy the narrative and lighter gameplay they seek, but hardcore players can enjoy the challenge that they seek.

Some rooms focus on extrinsic rewards, such as a leaderboard with the fastest times. The problem with putting too much emphasis on this is that it is quite easy to cheat in many escape rooms that use the same puzzles for every group. While some players are motivated by a leaderboard, others will find it frustrating and demotivating. Allowing the players to decide if they are going to play the game in a competitive mode or a non-competitive mode will allow each team to engage with the game in the way they desire. Those who want to rush through the puzzles and compete for the fastest time can do so and those who want to enjoy the narrative and engage with the playful escape that the room can provide can enjoy a more laid-back experience.

Since escape rooms are hoping to meet the needs of many different player types, they should allow the players the ability to set their game mode. This will provide a way for a group of players to

communicate to game staff what kind of game experience they are seeking. Setting the game mode can dictate the number of clues, the qualification for ranking on the leaderboard, and, for ambitious room designers, some of the puzzles themselves. Facilities with a human gamemaster can easily adjust the difficulty of the game experience by giving more frequent or more cryptic clues. Facilities could also create several versions of the same puzzle that can be swapped out for a group based upon what kind of experience they would like.

For example, one way that these game modes could be presented to the players could be:

- Casual: Players may request hints or solutions to puzzles and staff will assist teams that are having problems.
- Standard: Players may request hints but not solutions to puzzles. Staff will assist if teams are truly stuck.
- Hardcore: Teams are eligible for the leaderboard. Players may request one hint. Staff will not assist teams. Puzzles may be made more difficult and red herrings may be introduced.

This then creates an experience that is appealing to those who want to burn through the puzzles and want the real challenge while providing the reward of recognition that motivates some players. It also allows players who are just looking for a causal game experience with friends to find what they are seeking. More importantly, it allows the players the way to communicate with staff what type of game experience they want to have. Another tip to take from videogames to enable a better player experience is to allow teams to switch to an easier mode while playing the game, so that if they are frustrated, they have a way to resolve that frustration before the game is over. Adding these modes of play increases the chances that each group will come away having had a good experience.

## Looking to the Themed Entertainment industry to add Replay Value to Escape Rooms

One of the most commonly voiced frustrations by escape room proprietors is how to create rooms that are replayable. There is a significant financial benefit to this for the rooms in building a repeat customer base. Many facilities report that they have regulars who are excited and fill all available slots when a new room comes online, but then they have nothing to offer until another room is available. Prices to play the room are high when compared to other one-hour gaming experiences, so people will pay once for the novelty of the new room. This is the model of the AAA video game industry: considerable investment goes into a single title with the hopes of it selling well enough to provide the funding to create the next sequel. This is the result of escape room proprietors modeling their rooms off of the video gaming industry.

A better match for escape rooms is for them to consider themselves part of the themed entertainment industry. Successful themed entertainment venues think about how to appeal to the return visitor as well as the first timer. They are still in a constant state of renovation and addition, but the user experience is designed to be something that can be repeated and enjoyed. If an escape room is full of static puzzles and revelations that, once discovered, can be easily repeated, then there is little replay value to the room. This method of room design is currently the industry standard, as it is based off the design of point-and-click adventures and puzzle hunts.

By thinking about creating a replayable experience from the beginning, escape rooms can change their player experience so that is more about having the adventure and less about doing the static puzzle. In his TedX talk, Matt DuPlessie, president of 5Wits, said that they found no patterns between different

sorts of players and their enjoyment in specific puzzles, challenges, or special effects. They found three things that players consistently enjoyed: being part of a spectacle, feeling heroic, and engaging with something challenging (DuPlessie, 2013). By creating these three things, it immerses players in a narrative where they are part of an adventure.

There are a few ways to create a replayable room. The first is to create multiple puzzles instead of one. This can be done through computer-generated puzzles, where each team gets a different puzzle to work through. The puzzles can be printed out, facilitated by the computer, or, through the use of RFID, displays, and inexpensive small computers, physical puzzles can have different instructions and solutions. Some designers manually create several sets of puzzles, and a team can request a different puzzle set if they have already played in the room.

Another method, which is used by *MagiQuest* (multiple locations), *Wizard Quest* in the Wisconsin Dells and *Sorcerers of the Magic Kingdom* at Disneyworld's Magic Kingdom, is to create an escape room with many different possible puzzles, and each team gets a different randomly generated path that uses a subset of puzzles. Therefore, while a team may get one or two repeat puzzles on another play, most of the experience will be new.

The method used by 5Wits to keep their adventures replayable is to have puzzle-based tasks that groups must work together to complete. As it is a family-focused attraction, the design focus is not on making mind-bending or tedious puzzles, but rather to create fun puzzles that not only require a solution, but require the group to work together to carry out the solution. One example of this was from *Entros*, a closed themed attraction from Seattle, where one player had to wear a helmet with a camera on it and enter a space with basic physical puzzles that involved simple tasks like tossing balls into targets and the rest of the team offered voice direction to help that player complete the tasks. This task was not about solving a puzzle, but about accomplishing something as a group.

This idea of puzzle-based tasks is at the heart of Boda Borg, an escape room franchise born in Sweden and coming to the United States. At Boda Borg, teams work together to take on quests, which are a series of rooms that have short challenges without instructions. Players must work together to figure out what to do and then accomplish the tasks in a short period of time. Upon completion, the team can move on to the next room. If they fail, they leave the quest, but can start again with their new knowledge. Boda Borg is designed around a videogame structure where players try, learn, fail, and try again. Participants pay to play many games over a set period of time instead of paying per attempt (Boda Borg, n.d.).

Another way to add replayability is to have different endings that players can strive toward, based upon performance. The *Men in Black: Alien Attack* attraction at Universal Studios in Florida is a ride where players have guns and shoot at targets through the game while accumulating a score. At the end of the ride, the players get a different ending based upon their score, but everyone gets to experience the entire attraction.

Another approach to different endings without the competitive aspect comes from *Memori*, a room designed for the State Library of Western Australia. The designers did not want players to have a bad experience, as the goal of the game was to explore culturally relevant stories. Therefore, they made multiple endings, each of which was satisfactory, and the players saw the ending that corresponded to how many puzzles they solved. Therefore, no players came away feeling like the failed, but they had

different positive endings no matter how far they got into the experience (Raynes-Goldie, Lee & Metcalf, 2014).

Replayability is an achievable goal for escape rooms, but it has to be made a priority in design. For rooms wanting to draw a more competitive crowd by emphasizing leaderboards, having rooms that are replayable also makes it harder for a group to cheat for a faster time. As 5Wits has been working in this business for over 10 years, they have figured out the secret to replayable escape rooms; 25% of the business at 5Wits is made up of people returning to replay an adventure (Matt DuPlessie, Personal Communication, March 12, 2015).

#### Escape rooms franchises need to consider local culture

When first discussing this research with proprietors of escape rooms, there was some concern about labeling something as a Japanese room or a Hungarian room or an American room based upon elements of room design. One of the patterns seen throughout this paper is that there are differences in escape rooms by what continent they are in, but most of these differences are not based upon the design of the room – they are based upon the local culture surrounding the facility.

Many of these differences can be attributed to the nature and expectations of the type of players who are available, the types of spaces that tend to be available and other environmental factors outside of the puzzles. Facilities that are created by locals are more likely to have policies that meet the cultural expectations of local players. As more escape room franchises grow worldwide with the goal of selling a pre-designed room and set of policies, it is important that those running franchises recognize these cultural differences and allow local franchisees to change the policies and games to better fit within the local culture.

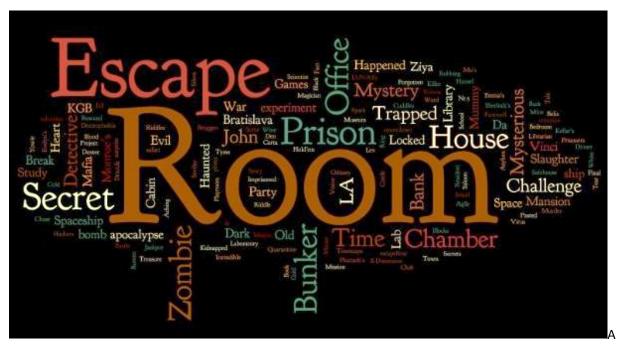
# The name "Escape Room" may limit the industry

There has been considerable discussion about the appropriateness of the term "Escape Rooms." Other terms that are commonly used are "Room Escape Games" and "Escape-the-Room Games." Essa from the *Intervirals* escape room blog did some research on this topic, looking at the commonality of the terms used by escape room facilities as well as the use of the terms in Google, and found that "Escape Room" was the most common name used, followed closely by "Escape Game" (2015). In a brief Webbased survey to see what players preferred to call the experience, "Escape Room" was the most popular answer.

There are some concerns voiced by proprietors with this term. The first is that the concept of having to **escape** evokes a horror theme that may not make everyone comfortable. The idea of being locked in a room and having to escape is exciting for some, but will drive others away from the concept. When a Wordle of names of specific Escape Room experiences are put together with a dark background, it gives an ominous vibe. For a company attempting to provide a family-friendly experience, the term "escape room" can be a challenge to overcome.

The other concern about the term "escape rooms" is that not all of these games are about escaping a room. In the survey of Escape Room facilities, proprietors reported that about 30% of their rooms did not require player to actually escape a room as part of the narrative. Many rooms are about non-escape topics, such as investigating a crime or helping someone find something. Keeping to the term "escape rooms" will become more problematic as the variety of goals that players are given to accomplish grow beyond escaping a room.

When looking at some of the genres most directly related to escape rooms, two include live-action role-playing (larp) and point-and-click adventure games. The live-action nature of larping is at the heart of what makes escape rooms engaging — being able to engage with other people around a series of challenges. One key difference between larps and escape rooms is that escape rooms typically do not require players to role-play; in fact, when talking about this concept with the escape room community, there was concern about using the role-playing term as it might drive potential players away. The live-action aspect is the important part to carry forward.



key difference between a point-and-click adventure game is that the player is in an immersive physical space instead of a virtual space. The core mechanisms of point-and-click adventure games of locating items, combining items, and solving puzzles maps with escape rooms. The amount of roleplaying in a point-and-click adventure game is usually quite light, as the player is focused more on solving puzzles and having an adventure.

Putting these two terms together produces the concept of *live-action adventure games*, or *live-action adventures* for short. This term is for this form of embodied play that combines the excitement of doing things in the real world, an element of perceived risk, the requirement of active participation and player agency to create a sense of adventure, which is the atmosphere in most escape rooms. The key difference between larps and live-action adventure games is that while players may be placed into a role for an adventure game, they are not expected to role-play or to make decisions as though they were a character. The expectation in a live-action adventure game is that the players will be acting as though they themselves are in this situation and having this adventure. This term would also apply to activities like *True Dungeon* and *5 Wits*, where the player is traveling from place to place having an adventure, as well as physical adventures like laser mazes, laser tag, and zombie runs. *5 Wits* and *Magiquest*, both family-focused themed entertainment venues, already use the moniker "live action adventures" when talking about their games. This could be shortened further to "live adventures" if needed for marketing.

To narrow this concept to an enclosed space, the word "room" can be used to replace "game" to imply that the activity takes place in a specific enclosed setting — a live-action adventure room. Facilities not wanting to use the term "escape rooms" could use the term "live-action adventures" to send the appropriate messages for a family-friendly environment. The term "escape room" can be preserved for those rooms where the narrative is focused on the player being trapped in a room and needing to escape. So, an escape room is a form of a live-action adventure room, but there can be other types of live-action adventure rooms as well. For example, a company wanting to market the concept that their game is built on solving puzzles could call their room a "puzzle room" and a game that emphasizes the player taking on the role of a detective could be a "detective room". This removes the narrative constraint that many facilities self-impose that every game has to be about opening a door. The parent term, therefore for the genre that encompasses all of these rooms would be "live-action adventure games".

Another reason for escape rooms think of themselves as live-action adventures is to improve the quality of the player experience. It puts the focus on the concept of creating a player experience that is an adventure that goes beyond a series of paper-based puzzles, counting items in pictures on the walls, entering codes on padlocks and using a black light. Designers of escape rooms need to consider how they are conveying a sense of player agency and adventure throughout their experience. In a well-designed live-action adventure, each puzzle or task should advance the narrative, amuse and delight, provide an a-ha moment, create a teamwork experience, or otherwise convey the experience of having an adventure for the players.

## **Future Work**

There are several studies that can follow up and add on to this research. The first study would be to replicate this study with rooms in China and Japan, as they are not well-represented in this study, or to explore how representative the rooms in Singapore and Malaysia are of rooms in other parts of Asia. Another study would be to focus on the best practices in developing escape room puzzles and working on the challenges that were identified as most difficult – creating puzzles, balancing the difficulty of puzzles, creating robust props, and how to integrate puzzles and narrative. A need in the field is ideas on how to create rooms that can be changed between plays in a fair manner, to both reduce cheating and allow people to replay the same game. Another need is to survey players in the same way that this study explores facilities and see where expectations match and where there are opportunities for improvement. More detailed psychological and sociological experiments on how different types of players interact with different types of puzzles and tasks, at both an individual and group level, would help designers make better choices.

Since my focus is on informal learning, my future research is focused on how to use escape room concepts for educational purposes and, more specifically, in places of informal learning like libraries and museums. Escape rooms create a moment of passion around specific topics that then can be used as the spark to then ignite interest in something for a player to learn more about later.

#### Keeping up and acknowledgements

There are two online communities created by the author for those who wish to keep up with this line of research, find calls for research projects, and continue the froth about Escape Rooms. There is a Google Group called Escape Enthusiasts at <a href="https://groups.google.com/forum/">https://groups.google.com/forum/</a> - !forum/escape\_enthusiasts and

a Facebook group at <a href="https://www.facebook.com/groups/608883549212939/">https://www.facebook.com/groups/608883549212939/</a>. Those reading who wish to continue this conversation are encouraged to join one of these groups and help explore future paths for escape rooms and other forms of live-action adventures.

I also wanted to acknowledge Konstantin Mitgutsch, Chris M. Dickson from the Exit Games UK blog, Escapist TO from the Toronto Escape Rooms blog, Essa from the Intervirals room escape blog Dan Egnor from the Escape Room Directory, Jing Jing from the Escape, and Mike Yuan from the Escape Games Review blog. They reviewed my survey and provided valuable insight in crafting the questions, the lists of puzzle types and room themes, and ideas for new questions.

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# Appendix A: Participating Escape Room facilities

Below are the Escape Room Facilities that are allowing me thank them publicly for their assistance in participating in this survey. There are others who wished to remain anonymous.

60 Minutes to Escape, Portland OR

ACT Room Escapes, Phoenix, AZ

Adrenalin Escape rooms, Belgrade

Amaze Escape Events, Den Haag

Art Enigma Valencia, Valencia

AT Escape, Toronto (North York)

Athens Clue, Patras Clue, Heraklion Clue, Escape Limassol

Breakout Brussels, Brussels

Breakout Entertainment, Edmonton

Breakout Manchester, Manchester

BreakRoom Vilnius, Vilnius

Cage404, Istanbul

Can You Escape, Edinburgh

Challenge Accepted, Kraków (Cracow), Małopolska (Lesser Poland district)

Challenge Chambers, Dubai & Abu Dhabi

Claustrophobia, Moscow, Saint Petersburg, Nizhniy Novgorod and 10 more cities in Russia, Kiev and Tallin

Clock-Locked, NSW Sydney

ClueJob, Limassol

ClueQuest, London

Cronologic, Barcelona

Cyantist, Bournemouth

DeepNext, North Holland

E-Exit Escape Room, Budapest

Enigmarium Escape Room®, Ljubljana (capital), in development other cities too

AdventureRooms Chur and AdventureRooms Davos, Chur and Davos

Escap3d, Belfast, Dublin

Escape Bryggen, Bergen

Escape Challenge, Delft, Zuid-Holland

Escape hour, edinburgh

Escape Hunt Singapore, SG

Escape Key, Brantford, Ontario

Escape Land, London

Escape Manor, Ontario

Escape Maze, Peterborough, Ontario

Escape Planet, Istanbul

Escape Quest, Kyiv

Escape Quest, Macclesfield, Cheshire

Escape Rome, Rome

Escape Room Helsinki, Helsinki

Escape Room International, Melbourne Victoria

Escape Room Malaysia, Petaling Jaya

Escape Room Melbourne, Victoria

Escape Room Niagara Falls, Niagara Falls Ontario

Escape Room Oz, Caloundra, Queensland

Escape room, Riga

Escape rooms, London

Escape this Room, Utrecht

escape zone, Petaling Jaya, Selangor

Escape, sites are Escape Edinburgh, Escape Glasgow and Escape Newcastle

Escape010, Rotterdam

EscapeHouse.sk, Pezinok

EscapeZone, Toronto

ESC-IT, Ontario

EXIT Berlin, Berlin

Exit Plan SG, Singapore, Chinatown

Exit Strategy, Charlotte NC

ExitGame, Rotterdam

ExitGames Saarland, Saarbrücken (Saarbruecken) / Saarland

ExitGames, Moscow

Exodus London Escape rooms, London, ON

Freeing Group: Freeing HK, Freeing SG, Freeing Italy, Freeing Canada, Freeing India, Freeing Taiwan...

Great Escape, Ontario

HintQuest, Munich, Bavaria

Houston Escape Room, Houston, TX

InsideOut Escape, Helsinki

ISTrapped, Istanbul

It's A Trap! A Room Escape Adventure, Winter Park, FL

Krakit, Burnaby BC

Laser Gambit Amusement Services LLP, Chennai, India

Lockdown, Singapore

Locked, Thessaloniki

LockQuest, Toronto Ontario

Logic Locks, Amsterdam

Logiquit, Los Angeles CA.

LOST, Hong Kong, Singapore, Toronto, HCMC

Mad Mansion, Bilbao

Make a Break Berlin - Live Escape Game, Berlin

Mazeup, Istanbul

mesemisszio.eu - TalesMission Co., Budapest

Mission45 Room Escape, Toronto/Ontario

Mystery Room Escape, Johor

Mystery Room NYC, New York, New York

Odadan Kaçış, İstanbul

OMESCAPE, Richmond, California

Origin Room Break, Toronto

PANI.Q., Ontario

PanIQ Entertainment LLC., California and expanding

PANIQ-SZOBA, PANIQ ROOM, Budapest, Los Angeles, Melbourne, Sydney

ParaPark Österreich(Austria), Vienna, Linz

Parapark Santiago of Chile, Santiago

ParaPark Szeged, Szeged

Pod Zamkom - quest room (Under lock in english), Kiev

Project Escape, Kraków (Cracow)

Puzzah!, Colorado

Puzzle Break, Seattle, WA and San Francisco, CA

Puzzled Room Escape, Brisbane

Real Escape room, Dordrecht

Real Room Escape, Bucharest

Riddle Room, Minneapolis, MN

Room Escape Adventures - Trapped in a Room With a Zombie, New York

Room Escape Adventures, Columbus, OH

Room Escape Amsterdam, Amsterdam

Roomescape Network (Stockholm, Vienna, Novi Sad, etc.), Stockholm

Roomescape Zagreb, Zagreb

Roomin Escape, Barcelona

Salisbury Escape, Salisbury

SCRAP, San Francisco, New York, Tokyo, Toronto, and more

Sherlock Ankara, Ankara

Sherlocked - Mystery Experiences, Amsterdam

Team Adventure, Tallinn

Team Escape, Budapest

The Escape Artist, Singapore

The Escape Hunt Experience (Perth), Western Australia, Brisbane, and multiple locations

The Great Escape Room, Orlando, FL, Miami, FL, Royal Oak, MI, Tampa, FL

The Mindtrap, Thessaloniki - Athens

The Puzzalarium, Ca

The Room, Bratislava, Zilina

The Voluntary Resrource Centre, and PEI Escape rooms, Charlottetown, Prince Edward Island

The X-Door, Valencia

TIXS Countdown games, Wiesbaden Hessen

Trap Krakow , Krakow

Trapped Toledo, Ohio

Trapped! Escape the Room, Lubbock, Texas

Trapped.sg, Bugis/Orchard Road

Xcape Adventures, Texas

Xcape Singapore (Penang Branch), Penang

Xcape Singapore, Singapore

X-Dimension, Paris