



FUN, SURPRISE AND CHALLENGE IN ESCAPE ROOMS

Players' Perspectives

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Methodology

This report focuses on a psychological study that measured how individual person experienced their escape room game. There are many factors that play into an experience and of course others involved, but we were interested in how a person's perceptions of different factors, including their own involvement, was related to what they thought about the room.

To study our research questions, we used a survey company to recruit a sample that we believe is fairly representative of adults in the United States. We also posted the survey in social media groups for escape room enthusiasts, but we don't know how well our sample of enthusiasts generalizes to the wider population of enthusiasts. Overall, our sample generalizes to a wide range of adult escape room players in the United States.

In this report I will describe differences or effects as statistically significant. That is based on a common statistic in psychology known as a p-value, which indicates the probability of getting an effect in the population just by chance. The p-value used throughout is .05. For more details on the statistics, please contact Christy Byrd.

This study was determined to be exempt from IRB oversight by the Institutional Review Board of North Carolina State University. The research was funded by the NCSU College of Education.

Thank you to everyone who participated in our study! If you have more questions about the data or are interested in collaborating with us on future research, please email Christy at christy_byrd@ncsu.edu.

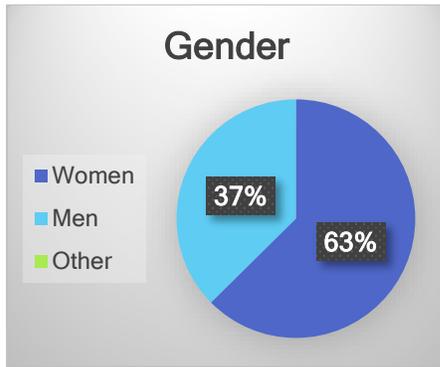
About the Author

Dr. Christy Byrd is a co-owner of EXIT Escape Rooms and an Assistant Professor in the College of Education at North Carolina State University. She received her PhD in Education and Psychology from the University of Michigan and is the author of *Facilitating Team-Building Sessions: A Guide for Escape Room and Exit Game Owners* and *The Team-Building Workbook for Escape Rooms*.

Participants

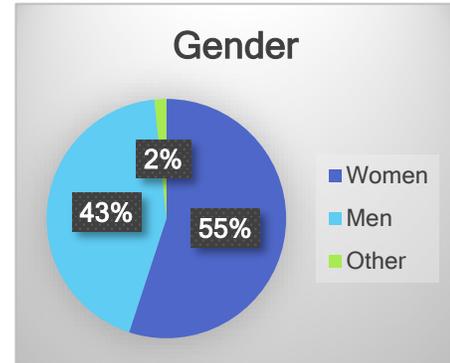
We recruited two groups of participants: a general population and enthusiasts. The general population was recruited with an online survey company that targeted adults in the United States over the age of 18. The enthusiasts were invited from the Escape Room Enthusiasts Facebook group, the r/escaperoom group on Reddit.com, and through links shared on Twitter.

219 GENERAL POPULATION PLAYERS

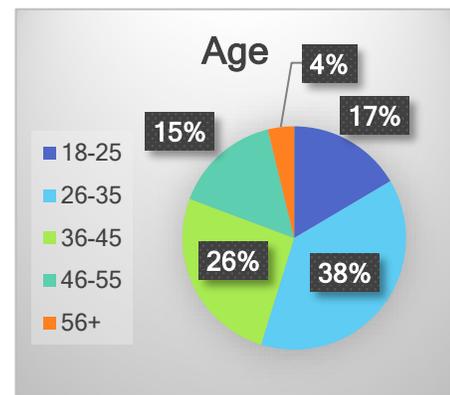
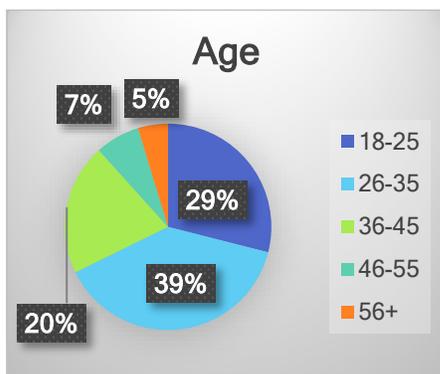


The survey company delivered a screening survey to 2,775 individuals who indicated if they had participated in and of the following activities during the past three months: played an escape room (9.2%), went to a movie theater, (51.5%) went bowling (27.9%), went to a makerspace/DIY studio (9.2%), or played laser tag (10.3%). Of the 255 who had gone to an escape room, 36 were excluded for not being in the U.S., under age 18, completing the survey in less than 110 seconds, or submitting nonsense answers.

408 ESCAPE ROOM ENTHUSIASTS



Out of 448 enthusiasts who responded to the survey, 408 (91.1%) had played an escape room in the past three months. An additional 8 enthusiasts were excluded for not being over the age of 18 ($n = 7$) or completing the survey too quickly. In terms of country, 72% lived in the United States, 7% lived in Canada, and 5% lived in the United Kingdom.



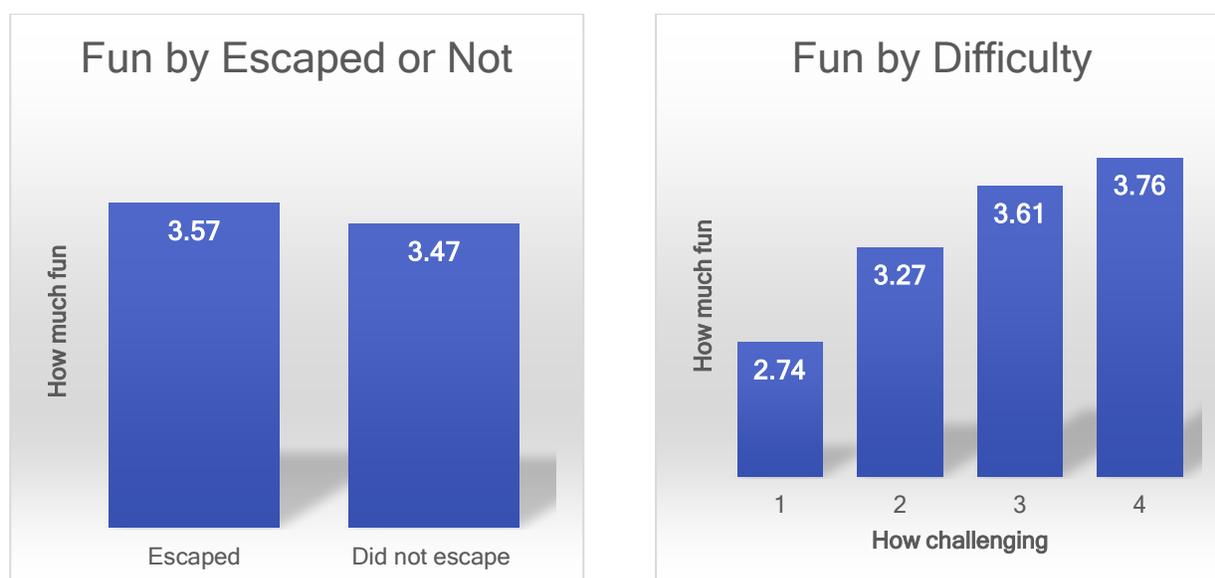
Surprise and Fun

Do feelings of surprise predict how much fun players have?

We were interested in whether feelings of surprise predicted how much fun escape room players had. This question was based on our observations that players who discovered unexpected elements of the room enjoyed their games the most.

We asked players how many times they felt surprised on a scale from 1 (never) to 4 (more than a few times), how challenging the room was on a scale from 1 (not at all) to 4 (very), and how much fun the room was from 1 (not at all) to 4 (very).

On average, players felt surprised "a few times" (Mean = 2.80) and their rooms "somewhat" fun (Mean = 3.55) and challenging (Mean = 3.04). Players in a group that escaped in time had just as much fun as players who did not escape. There was a small difference in average amount of fun (see the chart below) but this difference was not statistically significant.



Difficulty was also significantly associated with how much fun players had, up to a point. As seen in the figure on the left, the most difficult rooms were only marginally more fun than somewhat difficult rooms. To answer our question, feelings of surprise were moderately related to feelings of fun, even when controlling for how challenging the room was. So when players felt more moments of surprise, they reported having more fun.

Escape Room Style

How do players work together?

We are developing a framework of how teams work together in escape rooms. To test our initial ideas, we measured player's engagement, teamwork, leadership, and need for cognition. See the box below for definitions of each term.

Engagement: In the room, how much players enjoyed and felt satisfaction when the solving puzzles (7 items)

Teamwork: In the room, how much players collaborated with others and asked for help (3 items)

Leadership: In the room, how much a player gave direction to others and relied on their own expertise and judgment (5 items)

Need for Cognition: In general, how much players have a tendency to engage in and enjoy activities that require thinking (6 items)

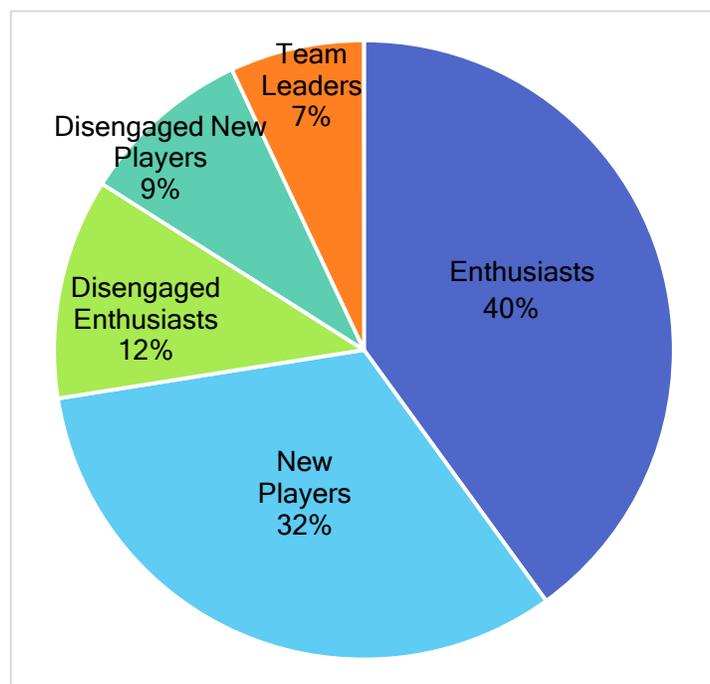
Demographic comparisons showed that women were significantly higher in engagement compared to men ($\text{Mean}_{\text{women}} = 4.41$; $\text{Mean}_{\text{men}} = 4.30$) and lower in leadership than men ($\text{Mean}_{\text{women}} = 3.41$; $\text{Mean}_{\text{men}} = 3.53$). Furthermore, younger players showed more leadership and higher need for cognition. Given these differences, we controlled for gender and age in the analyses. The research question was whether escaping was associated with a player's style.



In the general population, players who escaped in time demonstrated more leadership compared to those who did not escape in time. As seen in the chart above, this was not the case for enthusiasts, who had high leadership whether they escaped or not.

Engagement, teamwork, or need for cognition did not have a significant relationship to whether players escaped.

For a deeper look at style, I conducted a latent profile analysis, which finds underlying groups within the data. The analysis included engagement, teamwork, leadership, need for cognition, age, gender, and the number of escape rooms played (1-5, 6-20, or 20+). My analysis found five types of players:



The **Enthusiasts** group was 40% of the sample. This group was highest in need for cognition and above average in engagement and leadership. None of this group were new players: 67% had played more than 20 rooms and the rest had played between 6-10 rooms.

The **New Players** group was 32.5% of the sample. They were average in need for cognition, teamwork, leadership, and engagement. However, 87% had only played 1-5 escape rooms. Women were 70% of this group and 26-35 year olds were 46% of this group.

The **Disengaged Enthusiasts** players were 11.5% of the sample. They were average in need for cognition, teamwork, leadership, and engagement, but none were new

players: 31% had played 6-10 rooms and 31% had played more than 20 rooms. Most of this group were men (74%).

The **Disengaged New Players** were 9% of the sample. They were low in need for cognition and while playing contributed the least teamwork, leadership, and engagement. This group was mostly new players (76% have played 1-5 rooms) and they tended to be younger (46% were 18-25).

Finally, the **Team Leaders** group was 7% of the sample. They were low in need for cognition but the highest in teamwork, leadership, and engagement in the escape room. This group was divided in experience: 25% were new, 56% had played 6-10 rooms, and 19% had played more than 20 rooms.

I then compared the groups by their experiences in the room. The Disengaged Enthusiasts reported feeling surprised the least often, significantly less often than every other group. The Team Leaders experienced the most surprise, significantly more than all groups except New Players.

The New Players (28%), Enthusiasts (11%), and Team Leaders (11%) had the highest failure rates. Although they tended to have escaped, the two disengaged groups had less fun compared to the other groups (which were not significantly different from each other). These two groups felt the room they played was less challenging compared to the other groups. Notably, the New Players and Disengaged New Players had one of the largest differences in perceived difficulty.

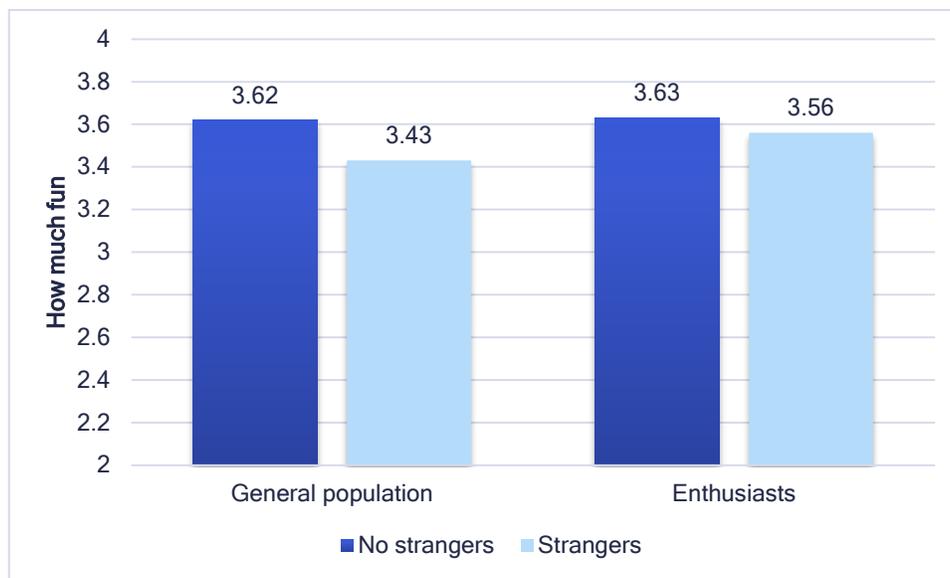
Playing with Strangers

Do those who play with strangers have less fun?

One big controversy in the escape room community is private vs. public bookings, i.e., whether only one group can book a timeslot or strangers can join.

Therefore, another research question was whether playing with strangers was associated with how much fun players had. For ease of comparison, we limited the sample to players in the U.S. (n = 442), where public rooms are more common.

We asked participants how many players were in the room with them and how many were strangers (none of them vs. some or almost all of them). 42.5% of the general population played with strangers, compared with 15.9% of enthusiasts.

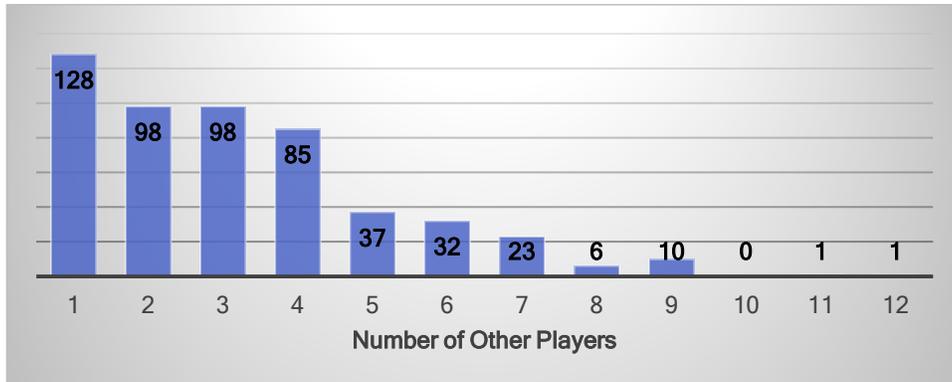


There was no significant difference in how much fun people who played with strangers had compared to people who did not. This was true even when we took into account the number of other players and perceived difficulty. The relationship was the same for the general population and enthusiasts.

Group Size and Clues

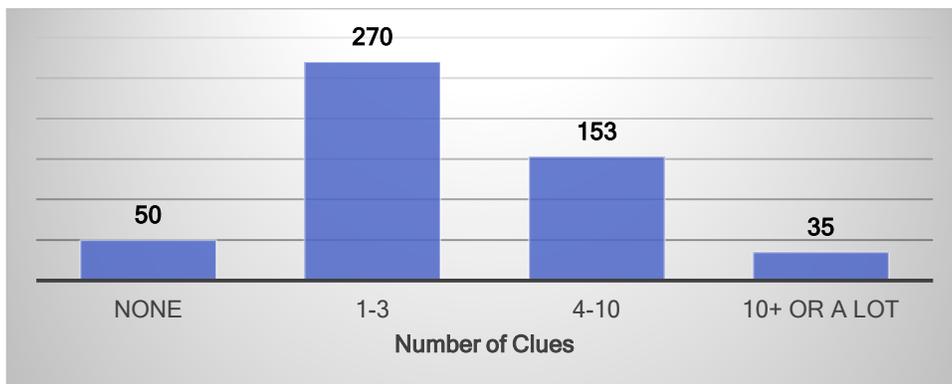
How are the number of players and the number of clues received associated with how much fun the room is?

Finally, we wondered whether other aspects of the room influenced how much fun a player had. We asked players how many people were in the room, not including themselves. Group sizes ranged from 1 other person to 20 or more in a few cases, on average 4-5 other players. The chart and analysis below only shows group sizes up to 12 to reduce bias due to the unusual responses.



On average, enthusiasts played with significantly fewer others (Mean = 3.52) compared to the general population (Mean = 4.84).

We also asked how many clues they received and coded their responses as none, 1-3, 4-10 or more than 10 (which also included responses of “a lot”, “many”, etc.). Those who were not sure how many clues they received were excluded.



The number of players was not related to how much fun players had. Though players felt challenging rooms were more fun, more challenging rooms also required more clues in order to solve. When taking difficulty into account, players who received more clues had less fun.

Summary and Conclusions

We studied various aspects of players' experience of an escape room they played recently. The major findings were:

Untapped markets? Our survey was sent to a broad range of adults in the United States, but only 9% had gone to an escape room in the last three months. Of those 9%, 75% had only been to between 1 and 5 escape rooms. In comparison, nearly 30% had been to bowling, another group activity. This suggests that escape rooms still have a large audience who may enjoy them but have not yet experienced them.

Surprise promotes fun: Players who experienced more feelings of surprise as they played had more fun. Escape room designers and owners can think about ways to create unexpected elements in their rooms, either through novel puzzles or by presenting familiar puzzles in unusual ways. Furthermore, designers and owners can think about ways to hide or obscure elements so that players have the opportunity for discovery.

When it comes to escaping, leadership matters: A player who reported taking charge in a room and directing others was more likely to be in a group that escaped, whereas a player's reported teamwork was not important in escaping. It may be that groups need organization and strategy to be successful more than they need people willing to ask for help. Note that leadership and teamwork were not opposed to each other, and many players showed high levels of both. What's not clear from this finding is whether it's important for a type of particular person to step into a leadership role or whether having any leader is helpful.

Distinct types of players: My analysis found five groups of players. Three of these groups represent important target markets for escape room owners: Enthusiasts love playing escape rooms and the intellectual challenge they provide. Additionally, New Players (mainly women and in the 26-35 age group) are a large and potentially profitable market because they enjoyed their games just as much as Enthusiasts. Most interesting was the Team Leader group that was small but had the players who were the most engaged in the games. This group seems to appreciate the collaborative aspect of escape rooms, so owners could attract them by emphasizing the need for teamwork over the challenge of solving puzzles. We also saw two other groups owners can also be aware of: Disengaged Enthusiasts found the rooms they played to be less surprising, challenging, and fun, perhaps because they experienced too many tropes or re-used puzzles. Disengaged New Players felt similar levels of surprise to other New Players but they rated the room as much easier, so they may have been seeking a challenge the room failed to provide. Since this group was lowest in need for cognition (the enjoyment of activities that involve thinking) the puzzles of an escape room are likely not the kind of activity they enjoy.

Players still have fun with strangers: Both enthusiasts and the general public reported just as much fun in rooms they played with strangers and without strangers. Although enthusiasts have strong preferences, they should not assume their preferences extend to casual players. The general public may be seeking a type of game experience that can accommodate interactions with people who are not their friends.

More clues can dampen fun: For rooms of equal difficulty, when players received more clues, they had less fun. We did not ask whether the clues were asked for or given unprompted, but it may be that players who need more clues feel that the room is unfair, so they have less fun. Owners and designers should think about the ways that information is presented to players and how clues are delivered. Connecting with the surprise finding, there may be ways to allow players to discover additional help that does not rely on formally asking for a clue.

In sum, this study represents an initial analysis of some of types of escape room players and the factors that make escape rooms fun. Elements of surprise, difficulty, and providing guidance to one's group were shown to be important considerations in this sample. Future work will consider other personality and group characteristics that can affect the escape room experience and will look at within-group dynamics.