PICK SMALL ONE

Game601 - Fall 2022

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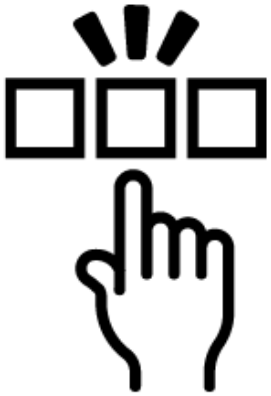

Abstract

Pick Small One is a guessing number game that players need to pick the smallest number among three random numbers that another player gives. The guessing player can ask three true or false questions and the answering player can lie once. If the guessing player picks the smallest number, the guessing player win, otherwise, the answering player wins.

Materials:

- Pen & paper

Rules:

1. The answering player writes down three different numbers from 1-10 in secret.
2. A guessing number can ask three true or false questions, but the player cannot ask if the number is the biggest or smallest or in the middle.
   Example questions:
   i. Does the first number is bigger than the second?
   ii. Does the second number is bigger than 5?
3. Answering play can lie once.
4. If the guessing player picks the smallest number, the guessing player win, otherwise, the answering player wins.

Design Process – Modified the Number Guessing Game

Game Modified: Number Guessing Game

Think of a number from 1 to 100 – someone else tries to guess it – if they guess wrong, they lose.

When I think of a number guessing game, the first issue that came to mind is that this game's rule is too vague. It did not set the time limits and guessing chance limits so that this game only has one result --- guessing players get the correct number. Because the guessing player can try all the numbers from 1 to 100 and the player will eventually get the right number. Therefore, one thing I will modify is limiting the questions that the guessing player can ask.

Now the game become guessing players ask the answering player (the player who set the number for the guessing player to guess) several questions to guess the correct number, which reminds me of the Situation Puzzle. The Situation Puzzle is a game in which one player sets a mysterious situation, and the other players need to guess what is going on by asking questions that can only be true, false, or irrelevant. However, unlike situation puzzle, guessing player has questions limits, which may cause them hard to guess a specific number. Therefore, I decided to modify the game to guess the smallest number of several numbers that the answering player write down. In this way, guessing players' questions can be more targeted, reducing the difficulties for them and keeping fairness for both sides. So, the game becomes guessing player asks several true or false questions and guesses the smallest number.

However, under such a rule the game will be less playful for the answering player because the player has little impact on the game result. Therefore, I modify the game to give answering players a chance to lie while they are answering true or false questions. Meanwhile, I set the answering player can only lie once because if they do not have limits the questions will be meaningless. At this point, the game becomes guessing player asks several true or false questions to guess the smallest number, and after answering player can lie once.

Then I need to decide how many questions the guessing player can ask, and how many numbers the answering player can have. I start by setting the answering player as two numbers. I realized it does not work quickly because only one question can easily identify the smallest number but answering the player's lying chance makes this game a 50% random guess. Due to that, I set the answering player to have three numbers, and the guessing player can ask twice.

Finally, I start to playtest and made three changes. The first issue is that two questions with three numbers are still too little for guessing players to get useful information. They cannot prove the lie or truth with only two questions. I tested three questions and four questions. I noticed that three questions can help guess players prove if the answering player lie and at least one real information, but they cannot get the specific order of three number, so they still need to do the gambling. Four questions can tell the guessing player the specific order of three numbers, which is not fair for the answering player. By considering such a condition, I decided to maintain three questions and three numbers so that the result of the game can have uncertainty, which makes it more playful.

Another issue I noticed while playtesting is that if answering players set the same numbers among three numbers, it will mislead the guessing player too far and cause difficulties to decide the order of numbers, which influenced fairness. Therefore, I changed the rule that answering players need to set three different numbers.

The third issue I noticed is if guessing players ask a question like does the first number the smallest, and the first the smallest, the guessing player only needs to ask the same question three times, and they can notify the lie and identify the smallest number immediately. So, I modify the game to not allow guessing players to ask if the number is the smallest, biggest, or in the middle.

The final version of the game becomes answering player set three different numbers from 1-100, and a guessing player asks three true or false questions but cannot ask questions about smallest, biggest, and in the middle to guess the smallest number. The answering player can lie no more than once.