

Player Category Research on Murder Mystery Games

Popular abstract: Murder Mystery Games (MMGs), which are called Jubensha in China, have become a behemoth with more than 10 million players and a market size of more than 20 billion yuan (36kr Research, 2021). The total number of Jubensha players in China alone may match or even eclipse the global number of larpers outside of China. As the newest superstar from the big family of live action role-playing games (larp), the MMG was born in the UK in the 1930s but had never been as popular as it is now in China. For Chinese young people, it is not only a game but a huge industry combined with socialization, movies, TV shows, and traveling destinations as well. In other words, the MMG has become an important part of young people's daily lives. Why has the MMG had such an impact? In this paper, we want to answer this question from the players' side. The main topics of this paper are 1) introducing the development process of Jubensha in China and 2) inspired by Bartle's (1996) player taxonomy, building a model of player typology for MMGs. In a previous study, Dr. Shuo Xiong collected 292 questionnaires from players about their motivations for participating in Jubensha, analyzing the questionnaire and using GNS (Gamism/Narrativism/Simulationism) theory (Kim et al. 1997; Edwards 2001), we have built a player typology that serves as an empirical model of Chinese Jubensha players. The typology contains eight categories in a 3D quadrant: professor, braggart, conqueror, detective, actor, politician, socializer, and viewer.

Keywords: Murder Mystery Games, larp, Bartle's Player Taxonomy, GNS Theory, player typology, game design

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1. INTRODUCTION

Many scholars assert the point that the tabletop role-playing game (TRPG) is the origin of live action role-playing games (larp). There is a reasonable logic of the development from TRPG -- the most famous example being *Dungeons & Dragons* -- to larp in Western countries; in other words, players in Western countries have developed a habit of playing live action RPG games. However, in China things go totally different-- there is no history of *Dungeons & Dragons* and only a few people talk about larp -- Jubensha is a totally imported product. What is still unknown today is why Jubensha has grown so rapidly in China, even becoming a mainstream social channel for young people. In this research, we focus on players: why they want to play the game, and what they want to get from the game.

Firstly, we combed through the history and lineage of the development of Murder Mystery Games. In our view, the Murder Mystery Game is the child of live action role-playing games and detective novels. Although it was born in the West, the Murder Mystery Game has exploded in China and formed a massive industry with many young Chinese, especially the highly educated wanting to play the Jubensha. After the epidemic of Covid-19, more and more Chinese youth rely on Murder Mystery Games for socializing.

Secondly, we introduce the basic Chinese Jubensha game process as featuring the following six steps: Preparation stage, Reading stage, Evidence search stage, Analysis stage, Voting stage, and Review stage. Finally, considering the Murder Mystery Game is similar to the Multiple User Domain game (MUD), this research uses a ludology method -- Bartle's Player Taxonomy -- to describe and analyze Murder Mystery Games. According to Bartle Player Taxonomy, we establish a new independent model with three axes, in which all Murder Mystery Game players can be divided into eight categories in a 3D quadrant: professor, braggart, conqueror, detective, actor, politician, socializer, and viewer. Each category of players has its special game inventions and scenario tendencies. Based on these

research conclusions, Murder Mystery Game authors could design better scenarios. If a MMG script has the following characteristics, the script is bound to be a success: sophisticated murder techniques and logical puzzles; rich storylines and tasks; deeply written characters and interpersonal relationships; meaningful motives and clues for committing crimes; smooth narrative expression; sufficient space for debate and interaction; and a certain degree of difficulty but with a relatively fair game competition environment at the same time.

2. LITERATURE REVIEW

2.1 The Origin and Development of the MMG

The MMG is a special type of larp that has become the most popular social entertainment among Chinese youth nowadays. According to Shuo Xiong's previous questionnaire survey of 292 players, 83.3% of players have a Bachelor's degree or above, which indicates highly educated players with a balanced gender ratio. The quality of the MMG scripts on the market is uneven with many types of scenarios. The development of the MMG industry is also facing the dilemma of how to provide more interactive and immersive experiences for players. Therefore, this research aims to analyze the players' motivations and types and makes suggestions on the script creation and industry development of MMGs.

As the name suggests, larp, like its sister game type TRPGs, requires participants to play a specific role. During the larp game, players generally do not need to use traditional gaming hardware consoles such as computers or chessboards. In terms of rules, larp looks more like an improvised drama performance to onlookers, with the entire game role-playing in reality, and the game format often places extreme emphasis on the dramatic and narrative nature of the story. The operation of larp relies on a narrative system, in which players play the desired character through communication and interaction based on the initial character settings of the game. The game world is a consensus environment in which both space and time are governed by a set of rules, some of which may be formalizable and quantifiable. The earliest larps appeared around the late 1970s and were inspired by tabletop role-playing games and popular novels. Then in the 1980s, larp began to spread around the world, and the script and game format became diversified, giving rise to a wide range of offshoot systems, of which MMG was one of the leading types during this period. The costs associated with larps can range from almost zero cost to expensive immersive venue layouts, and the time can be as short as a few hours or as long as several days. Today, more and more people are getting involved in the creation and game process of larp.

In many canonical larps, the author is first required to write or design a scenario and story containing different game characters, and then the players and the game master are combined together to form the complete game participants. In layman's terms, we can understand that the author is the scriptwriter who provides the story and background. Usually, the larp author does not appear in the game scene; the players are the actors, can play the role within the scope of the scene, and are allowed a certain degree of freedom during playing. For example, when a player plays a doctor in the 1910s, the doctor's specific personality, movements, speech, and behavior are allowed to be controlled by the player, but because of the setting of the times, it is obvious that DNA testing technology cannot be used to find clues about the murder case. Therefore, for this issue, the games also often require a game master, whose role is similar to that of a director: to prepare, manage and direct the performance of the larp process. With a scriptwriter, game master, and players, the larp game can advance normally. (Of course, for some scripts and skilled players, the DM can be omitted).

Like movies and novels, larps are divided into different themes to meet the needs of the corresponding users, and our research mainly focuses on the most common theme of current marketization:

the MMG. In the framework of literary works, detective novels have always had their own unique charm and stable audiences. However, in the relationship between larp and MMGs, the deduction, mystery solving, suspense, and horror are abstracted from script reading and further expanded by the interactive form of the game. Thus, MMG has become the most popular form of larp among young people nowadays in China.

Solving the MMG -- including deducing the real killer, uncovering the method, and piecing together the story -- is the core experience of the game; it is also the most attractive part of the MMG that distinguishes it from other larps. In fact, the earliest version of the murder mystery game was born earlier than the conceptually broader larp, having originated from the adaptation of a mystery novel. Its prototype can be traced back to the popular party game *Jury Box*, which was launched in the United States in 1935 (Steamfunk Detectives, 2021), and the reasoning game *Cluedo* patented by British musician Anthony Ernest Pratt in 1948 (Steamfunk Detectives, 2021). The original MMG of that era was simple in its reasoning and storyline, and by 1986, the post-Soviet psychology professor Dimitri Davidov perfected the *Mafia Game* (commonly known as *Close Your Eyes When It's Dark* in China), in which players are randomly assigned identities in the absence of a script and reason out latent killers through social interactions. Later, relying on many talented writers, increasingly complex plots were created to present the MMG seen now. Today, people do not even need to participate in the game for some excellent MMG works; simply participating in the audience to enjoy the stories performed by others is also quite enjoyable, such as the Mango TV network variety show *Star Detective Season 5*, inviting several famous stars in China to play Jubensha in front of cameras, has been broadcast up to 27.1 billion (Steamfunk Detectives, 2021).

Similar to mafia games or werewolf games, each player in MMGs is randomly assigned an identity, including detective, suspect, and the real killer (with possible accomplices), and some complex plots even have a mastermind behind them. In the game, the detective must find the murderer and uncover the plot; innocent suspects need to clear themselves and to complete their own various side quests in line with the persona, while trying to help the detective find the real killer. Of course, for the participants playing the killer, they must find a scapegoat, plant suspects (commonly known as “carry push,” that is, find innocent people to blame for the crime), and escape the detective and other players to avoid being captured. A large number of overseas MMG classic board game scripts such as *Death Wears White* (Parel 2008) were translated and introduced. A steady stream of original Chinese works were produced, for example, the series *The Magnificent Ambersons*.

The import of *Death Wears White* into China in 2013 is seen as the origin of Chinese Jubensha. But this kind of game did not draw too much attention until 2016, when Mango TV released a variety program named *Who's The Murderer* which was imported from JTBC (South Korea). The fifth season of the program broadcasted to up to 2.17 billion people (36kr Research, 2021). This development pushed Jubensha to become one of the most popular entertainments among young people. As of now, there are more than 45,000 stores in China with a player sizemarket size will increase to 23.89 billion RMB (36kr Research, 2021).

Nowadays, MMG can be easily purchased in physical and online stores. In the past two years, MMG mobile Apps have sprung up, especially during the COVID-19 pandemic in 2020, due to the non-meeting social game properties. The MMG apps have been a big hit, such as *I Am the Mystery*, *The Great Detective*, *Who is the Murderer*, etc. The market of Jubensha on mobile phones seems to have entered the Sengoku Period. Of course, the highest level of MMG form -- immersive dress-up live-action evidence searching -- which does not rely on any electronic equipment nor tabletop games, directly sets the scene in the physical room in a dramatic way. The player needs to change into the character's clothes and actually perform the game; the form is very close to the parent node larp of

MMG. This model is trendy among young people in major cities across the country. Of course, the cost and quality of a game are usually much higher than that of video game apps and tabletop game boxed decks. Therefore, in this context, it is imperative to carry out research around the MMG, and there are considerable values and gaps in the research, whether from the direction of ludology; communication psychology; advertising and marketing; new Internet media; or even criminal investigation.

2.2 Research related to the MMG

Searching for the keyword “MMG Game” on Google Scholar reveals that a considerable number of researchers have conducted research on murder mystery games. A.S. Jennings mainly focuses on the Serious Game application of MMG and in his 2001 paper “Murder, Mystery, Game: A Novel Approach to Science Writing.” He notes that students involved in creating an interactive, scientific MMG can help them describe scientific facts and principles. At the same time, the process of constructing the MMG script narrative stimulates the students’ potential ability to analyze the causes, influences, conclusions, and solutions.

Then, in 2002, in his paper “Creating an Interactive Science MMG game: The Optimal Experience of Flow,” Jennings found that traditional science writing group projects were difficult to make interesting for students and that being forced to work in teams could lead to a series of collaboration problems. Jennings set up a control group for this purpose -- one using a traditional teaching model and the other creating based on the background of MMG -- and found that the creative group of MMG was more motivated to complete the group project. In “Using an MMG to Teach Evaluation Skills: A Case Study,” Elise Blas (2016) describes how a teaching librarian created an active learning online MMG game to engage students. The MMG required students to evaluate information in the course, use online searches to verify information, and demonstrate critical thinking skills in a gaming environment. Fatwatul Hasanah and Desvalini Anwar’s paper, “Teaching Speaking Recount Texts to Senior High School Students through MMG Game” describes the use of MMG in teaching oral retellings texts for high school students. Through the MMG game, students are able to use existing clues to solve problems and share ideas with other students, thus motivating them to speak English.

In addition to serious game applications, there is also research in the field of information science around MMG. In 2006, Maria Arinbjarnar proposed a new game engine in her paper “Murder She Programmed: Dynamic Plot Generating Engine for MMG Games,” which can dynamically create new game scripts for MMG games. This engine uses Bayesian networks to create new plots based on the probability graph of a typical detective mystery novel. Each new game has a unique story with a logically consistent, coherent, and complete storyline, and ensures that the game can solve puzzles through logical reasoning. In the article “MMG Generation from Open Data,” Gabriella Barros et al. (2016) describe a mathematical model for finding the real killer among the many suspects in a MMG. By analyzing the suspect’s characteristics and collecting data, the player can narrow down the search for the real killer.

In “*ClueGen*: An Exploration of Procedural Storytelling in the Format of MMG Games,” Andrew Stockdale introduces *ClueGen*, an MMG game that generates its own narrative. The author explains the implementation and basic principles behind *ClueGen* and that the system can be used to trick characters through text dialogue in the generated game by using voice cues. In his paper “Eliminating the Impossible: A Procedurally Generated MMG,” Henry Mohr (2018) presents a murder mystery generation system in which characters are procedurally generated to achieve a set of goals within the game’s script. Players can also solve murder mysteries by collecting real evidence as well as interrogating characters, and even though some characters may hide evidence, the system ensures that

players can always solve murders theoretically.

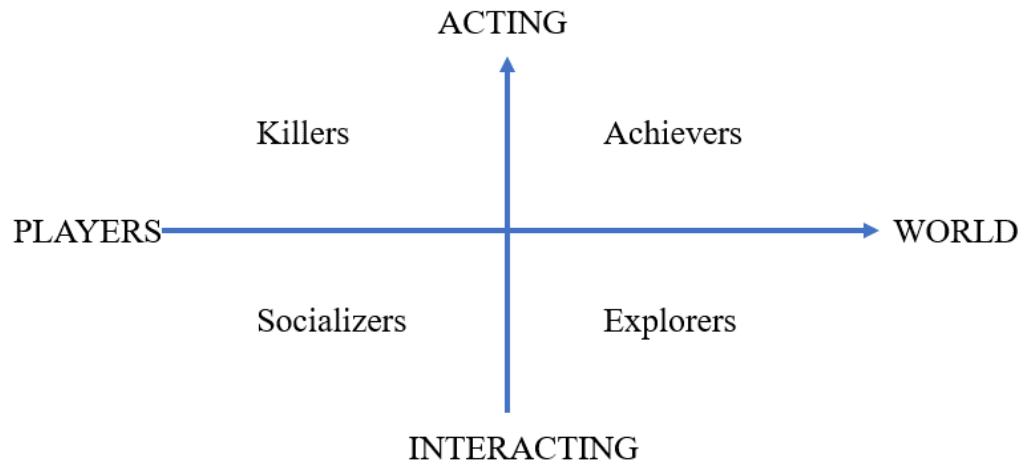
In summary, the current research on MMG in overseas literature is still mainly focused on serious games and artificial intelligence technology. This paper analyzes the players involved in the MMG from the perspective of ludology, based on Bartle's Player Taxonomy, which has a certain novelty.

2.3 Bartle's Player Taxonomy

Richard Bartle is a British author, professor and game researcher focusing on the massively multiplayer online game industry. Bartle co-founded Multiple User Domain 1 in 1978 (the first MUD), a multi-user virtual space game, which is a collective name for text-based online games, and was one of the earliest online games. Bartle published the book *Virtual World Design* in 2003. His most famous theory is his paper "Hearts, Clubs, Diamonds, Spades: Players who Suit MUDs," (1996) in which all players are classified into four types from player needs and traits: Killers, Achievers, Explorers, and Socializers. This paper also became the theoretical basis for many modern multiplayer game player analyses, as well as part of the foundation of the game studies discipline; usually the industry will call it "Bartle's Player Taxonomy."

In brief, based on players' motivations to play the MUD, behavioral patterns, attitudes toward verbal interaction, and other factors, Bartels established a coordinate system, as shown in Figure 1. The X-axis of the coordinates represents the object in the game, whether the player is more focused on real people or on the virtual world. The Y-axis represents the way the player behaves in the game, whether the player is more comfortable with concrete actions or with interaction. By crossing the X and Y axes, the whole plane is divided into four quadrants, corresponding to four types of players, which in the English sense correspond to the suits of poker. So Bartle (1996) drew up the title vividly and made it memorable with the following: Achievers always complete tasks and seek rewards, so they correspond to Diamonds; Explorers always dig for information, so they correspond to Spades; Socializers like to communicate with others, so they correspond to Hearts; Killers always intend to conquer other players, so they correspond to Clubs. Specifically, the characteristics of each type of player are as follows:

- **Achievers** like to do things in the game and play to achieve goals, such as completing tasks, passing levels, winning, etc. They like to get pleasure from achieving self-worth by completing mission goals.
- **Explorers** are interested in feeling all kinds of interesting things in the game, including discovering the Easter eggs buried by the designer and the story behind it and obtaining spiritual joy through the pursuit of discovering new things.
- **Socializers** are interested in interacting with other players, and the game world is just a platform and setting for them. Socializers like to meet others in the game and use it as a social tool, but often do not care much about the game itself.
- **Killers** are interested in doing something to other players, e.g., showing their advantages over others, usually by killing, destroying, conquering, defeating opponents, and other acts to prove their power.

Figure 1: The coordinate system of Bartle's Player Taxonomy

The advantage of Bartle's (1996) Player Taxonomy is that it turns design problems into intuitive categories, which can help solve many game design problems in a general and useful way. The theory has often been used as the basis for game development since it was proposed. Although the model has been questioned by some people in academia and the industry, such as the commonly mixed players and the unstable results in many tests (Yee, 2005; Williams, Yee, & Caplan, 2008). In general, Bartle's Player Taxonomy can give convenient ideas for game research, and it can also quickly help game designers and companies complete a general user analysis in a short time. Therefore, as a preliminary study of the MMG in Chinese, this article will quickly analyze the user composition of MMGs based on this theory.

2.4 GNS Theory in RPGs

GNS theory is an informal field of study originally created as the Threefold Model in role-playing communities (Kim et al. 1997) and later developed by Ron Edwards (2003) that attempts to create a unified theory of how role-playing games work. Focused on player behavior, in GNS theory, participants in role-playing games organize their interactions around three categories of engagement: Gamism, Narrativism and Simulationism.

- *Gamism* is expressed by competition among participants; it includes victory and loss conditions for characters, both short-term and long-term, that reflect on the people's actual play strategies.
- *Simulationism* heightens and focuses on Exploration as the priority of play. Players may be greatly concerned with the internal logic and experiential consistency of that Exploration.
- *Narrativism* is expressed by the creation, via role-playing, of a story with a recognizable theme. The characters are formal protagonists and the players are often considered co-authors.

As Jubensha (MMG) is a special type of larp, GNS theory could be a proper and accurate way to classify player types of Jubensha.

Inspired by Bartle's (1996) Player Taxonomy, we want to construct an empirical model on player classification of Chinese MMGs based on GNS theory.

3. OVERVIEW OF MURDER MURDER MYSTERY GAMES

3.1 MMG Game Process

Like the genres of speculative fiction such as “Mystery School,” “Orthodox School,” “Unorthodox School,” and “New Mystery School” (Songsheng 2000), MMG has different settings, characters, scripts, and scenarios. Some stories are based on contemporary reality, some stories imagine future technology, and some stories are set in ancient China and possibly with fantasy elements. For these different backgrounds and genres of works, the games also have different rules in the details of the process, such as: some must be hosted by the game master, some can be driven by the players themselves, some scripts encourage players to chat privately to gang up on each other, and other scripts explicitly prohibit players from having any private communication. Regardless of which rule it is based on, in general, the complete game can be described by the process shown in Figure 2. Different from larp in a broad sense, MMG is usually 2 to 5 hours long due to the specificity of the plot (the longer the game, the worse it is for the player who draws the murderer) and to avoid disruptions to normal life (humans usually eat at 5 to 6-hour intervals). The length of the game is determined by the complexity of the puzzle and the intelligence of the players, and once the game exceeds the specified time, it will be forced to enter the murderer voting session.

According to Figure 2, the whole MMG game process can be divided into six stages: preparation stage, reading stage, evidence search stage, analysis stage, voting stage, and ending stage.

Preparation stage: Before the game officially starts, the player or DM must choose a script, and according to the theme and introduction of the script, decide whether it is necessary for the player to understand the story’s themes, rules, forms of reasoning, and time period’s social context. After reading the basic theme and rule settings, all players will receive their script, preparing their emotions for formal reading and role-playing.

Reading stage: All players must read their scripts carefully to confirm the storyline, as well as their tasks. When all players have finished reading the story and confirming their quests, the performance begins, with players first introducing their characters’ identities and settings to each other, and making preliminary discussions about the events of the case (even at this time, the part of the script of the homicide has not yet occurred). This part is very similar to that in larp, players are supposed to enter the magic circle (ed. note: Huizinga 1958; Salen and Zimmerman 2003) and try to play the roles in the script; this process gives players an alibi (ed. note: Deterding 2017) and encourages them to immerse into the coming fantastic world created by the game master and themselves (Bowman and Hugaas 2021). The levels of immersion differ between different kinds of MMGs. The most traditional type of MMGs is only for reasoning; there are only some weak relationships between players’ characters, generally about tasks, like, “You should help player A or frame player B,” and they do not require deep immersion. However, recently the most popular type is about emotion, which focuses on the relationships between the players, as well as the players and game master, which could provide players with a very moving emotional experience.

Evidence search stage: After the characters and story have been introduced and the murder has taken place, all players need to search for relevant evidence to deduce who the murderer is. The search here can be provided interactively based on the MMG app or using the boxed board game version of the card. The most advanced is the real scene immersive evidence search, in which players look for evidence in a

real live set, with a sense of immersion. Of course, some of the evidence obtained from the search is an interference option, or simply used to reveal the hidden story of certain suspects in the branch. During this stage, the murderer character must hide the evidence against him or her.

Analysis stage: Analytical reasoning is the fourth and most central and crucial step of the MMG. At this time, the vast majority of evidence has been searched and presented to each player. Then, around the case and the puzzle, players will state their story timeline, alibis, character relationships, motives for the murder, etc.

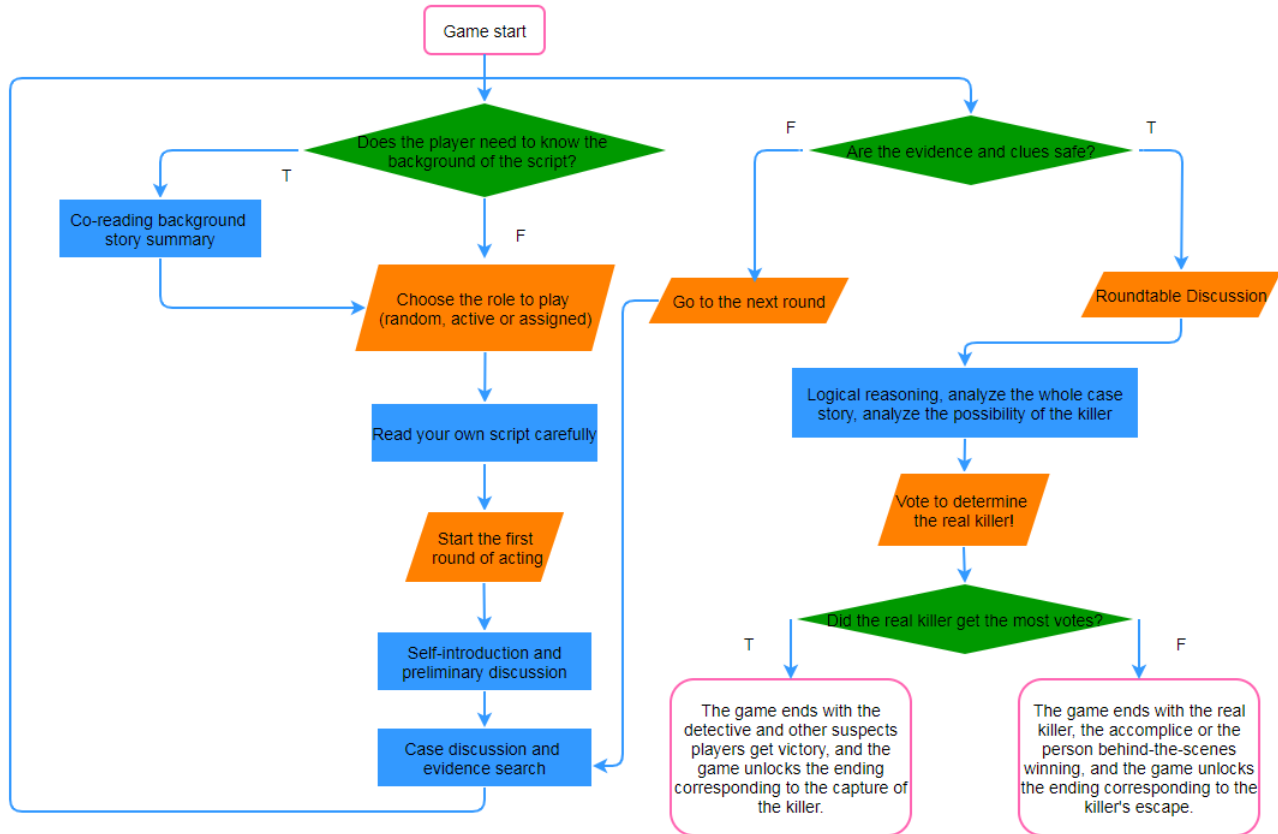
Voting stage: Also known as the round table stage, depending on the entire game time setting, the game master should announce the coming end of the analysis and discussion when the game is about to end with 15 minutes left, or when all players think that the murder puzzle has been solved with no need to continue the discussion. All players must reason who is the real killer, and then write down the corresponding character name to vote, and each character completes their own side quests during this period.

Epilogue stage: When all players have finished voting, the game master will announce the result of the voting, and the player with the most votes will be regarded as the “real criminal.” If two or more players have the same votes, a final vote will be held among them to determine the “real criminal,” and then the game master will tell all players whether the result of the “real killer” voted by all players is correct. If the reasoning is correct, the detective and suspect players win; otherwise, the killer player wins. Depending on the winning party, the game master will tell the players different story endings at this time. After completing play, players thank each other and then the game ends.

Due to the complexity of the entire MMG game process and the diversity of the stages, this type of game is destined to attract different types of people to participate in it. Therefore, we will try to use game theory to classify and model the MMG players, in order to help future MMG authors and practitioners when creating scripts and designing scenes, so that different types of players can enhance their experience in a wider and diversified manner. Considering that MMG as a party game has natural social attributes, while the strong logical reasoning element makes the players verbally confront each other fiercely, the entertainment attributes of the game itself, as well as the exploration of clues, puzzles, and stories is a mysterious process that is enjoyable for people. We found a high degree of similarity between MMG and Multi-User Dungeon (MUD) games, so we decided to borrow the famous Bartle’s Player Taxonomy from MUD research to model and generalize the player typology of the MMG.

4. PLAYER TYPOLOGY OF MMGS

Firstly, the “parents” of MMGs are historically derived from larp and detective mystery novels, and the combination of the two has given birth to the modern form of the MMG game. Regarding the motivations and interests of larp players, Staffan Jonsson et al. clearly point out in their paper “Prosopopeia: Experiences from a Pervasive Larp” that larp started as a subculture in the Tolkienist fantasy world, and through continuous development, modern larp culture has included contemporary and historical larp; conceptual larp (focused on emotional or moral dilemmas); and improvisational drama. The role in larp is the central focus of everything, and players mainly enjoy different scripts and characters with different settings of life, and experience and think about other people’s stories through performances.

Figure 2: The general game flow of the MMG

As a sub-category of larp, MMG naturally inherits this “performance and experience” element in player motivation. The charm of mystery novels lies in the intricately designed puzzles, the unknown fear before they are solved, and the sense of accomplishment and fun that comes from the moment of solving them, like pushing down dominos. So, players of MMG may be fans of drama or users of works of deduction art (including novels, movies, plays, anime and games).

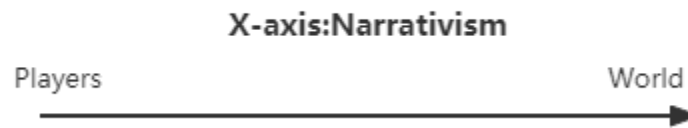
Secondly, MMG is indeed a party game. Since it is a game, it will inherit the common characteristics of the parent category of games. Any multiplayer game has social attributes and the game as an information medium originally also assumes the role of a social platform. In fact, in China, MMG has effectively become a channel for young people to get a break from video games and to gather socially away from theaters, bars, and restaurants.

Moreover, MMG requires multiple players to play “drama” together, the requirement for communication is stronger than that of computer games, and the language confrontation in the middle and late stages of the game is also an essential part of the MMG process. As Bartle’s (1996) theory of player categorization argues, “socialization” is a motivation for MMG to attract players.

Thirdly, MMG is a zero-sum game with clear opposing camps and a win-lose relationship; the murderer and the shady player always hope to successfully frame other players and escape, while the detective and the innocent suspect player desperately hope to bring the real killer to justice. Their mentality is very similar to the game between police and criminals in the real world.

4.1 The Axis Concept of MMG based on GNS Theory

4.1.1 X-Axis - The Object of the Game - Narrativism

Figure 3: X-axis for Narrativism, including players and the world

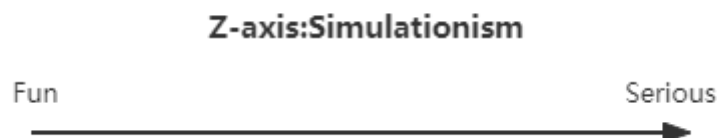
Setting Narrativism to be the X-axis, this section focuses on the preferences of players in MMGs in terms of how they treat the real world and the game world, i.e., Players-World relationship in Bartle's (1996) player Taxonomy. On the X-axis, the left means players in MMG pay more attention to interaction and socialization with real players rather than the game and the story; the right means players are more likely immersing in the game world and do not care too much about who they play with.

4.1.2 Y-Axis - The goal of the Game - Gamism

Figure 4: Y-axis for Gamism, including interacting and acting

Consider the meaning of the Y-axis. In Bartle's (1996) Player Taxonomy, it has acting, which refers to players being more likely to achieve things in the game, and interaction means they like to interact with others and feel in the game, this is called Gamism in GNS theory. These concepts describe players' goals in MMG. In Y-axis, the left means players in MMG enjoy the thrill of overcoming others, they play games for the win; the right means players just play for experience and do not like competition in games, or they do not care about the outcome.

4.1.3 Z-Axis - The motivation of the Game - Simulationism

Figure 5: Z-Axis for Simulationism, including fun and seriousness.

Finally, we consider the most common player motivations to mark the Z-axis, a very important concept in the field of games called Serious Games. In 2002, the Woodrow Wilson International Center for Scholars in Washington D.C., USA, launched the Serious Games Initiative to promote game development in policy and regulatory affairs (Wilson Center n.d.). When faced with specific problems,

the application of Serious Games in the fields of education, communication, and psychology has also been quite fruitful. As a player chooses to play MMG, their motivation is based on two branches, as Alice Mitchell and Smith (2004) argue: “The use of computer and video games for learning -- one is pure entertainment, and the other is an attempt to achieve a partially serious characteristic through the process of the game.”

So Simulationism is set as the topic of the Z-axis. Left means players just want to have fun during playing MMGs; right means players play these games for some serious purpose, for example, practicing social abilities or doing research.

4.2 The Empirical Model of Player Categories in MMGs

Dr. Shuo Xiong conducted a survey and in-depth interview among 292 players of Jubensha in previous research. According to the above logic discussion and analysis, this research is instructed by Bartle's (1996) Player Taxonomy and builds a model based on GNS Theory (Kim et al. 1997; Bartle 2003) and previous research. The players of MMGs can be divided into eight quadrants with a set of X-Y-Z axes (as shown in Figure 6) to represent the characteristics and differences of the eight types of players.

5. RESEARCH DISCUSSION AND CONCLUSION

This paper combs the origin, development history, and recent popular phenomena in China, and the universal process of murder mystery games. Based on this background, this study introduces Bartle's (1996) Player Taxonomy model and GNS theory (Kim 2003; Edwards 2001), establishing a coordinate system to differentiate the players of MMGs. The categorization of players can help to create the scripts of MMGs, and also can serve as a foundation for the subsequent research on MMGs.

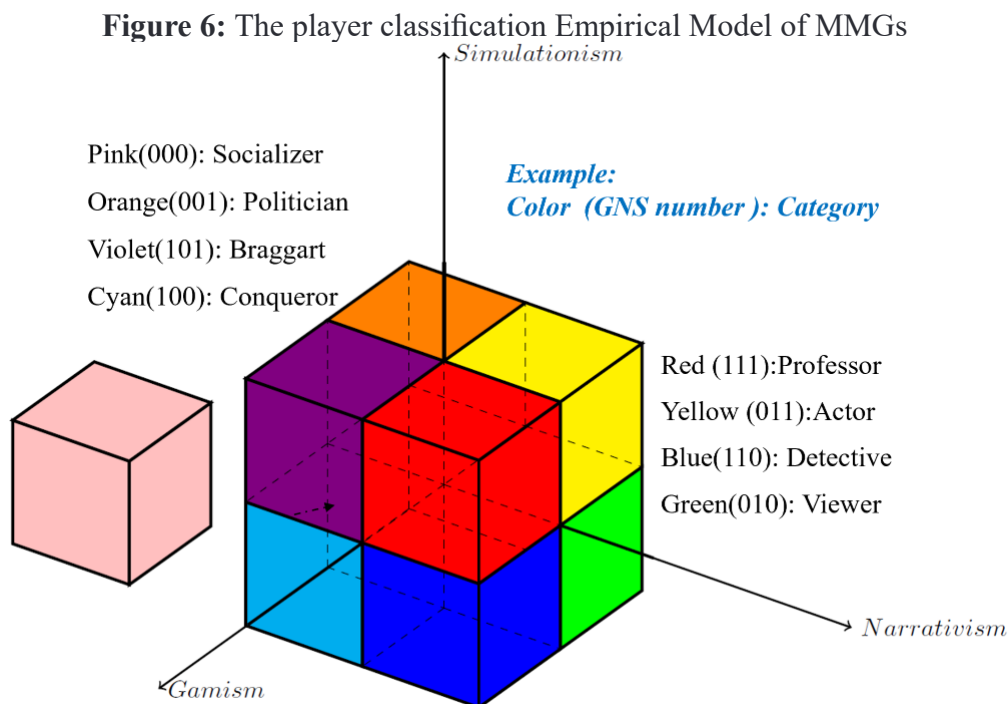
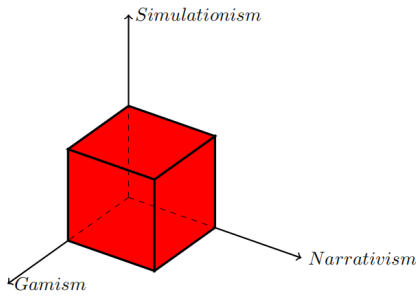
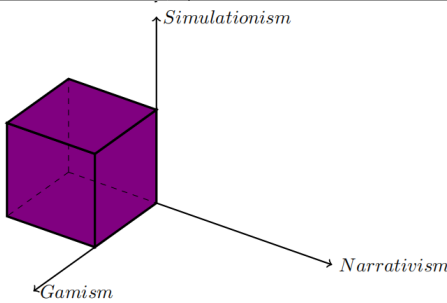
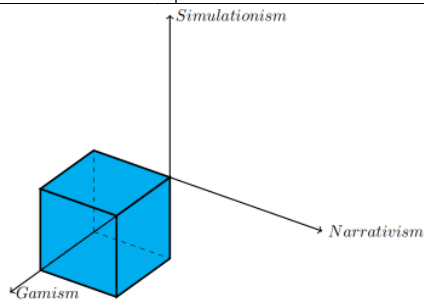
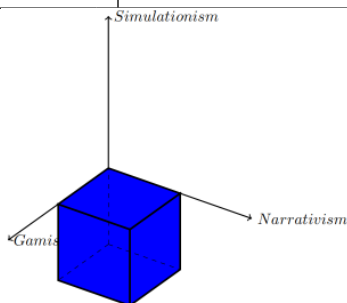


Figure 7: Specifics of player classifications in MMGs

Category		Description
Professor	G:1, N:1, S:1	<p>Playing to win, expecting a serious outcome from the game and enjoying the immersion into the narratives.</p> <p>Most professors are fans of detective fiction, with the purposeful desire to train their logical and analytical skills, or to strengthen their reasoning skills through entertainment.</p> <p>They are the most professional players; therefore, we called this type the “Professor.”</p>
		
Braggart	G:1, N:0, S:1	<p>Playing to win, expecting a serious outcome from the game, and enjoying the interaction with other players.</p> <p>Winning by playing games in the hope of bringing associated benefits such as social bragging and showing off one’s ability to be favored and complimented by others. There are such guys in China who like to attract girls in this way.</p> <p>They play Jubensha to catch the eye of others; therefore, we called this type the “Braggart.”</p>
		
Conqueror	G:1, N:0, S:0	<p>Playing to win, expecting to get relaxed from the game, and enjoy the interaction with other players.</p> <p>Playing games is all about winning and getting a thrill by beating others. Nothing else matters; it is as if they are participating in a special e-sports.</p> <p>They just want to beat the others; therefore, we call this type the “Conqueror.”</p>
		
Detective	G:1, N:1, S:0	<p>Playing to win, expecting to get relaxed from the game and enjoy the immersion of the narrative.</p> <p>Most of these players are lovers of detective fiction, like to immerse themselves in the deduction play, and simply enjoy solving puzzles in the game.</p> <p>They are the original MMG or Jubensha players; we called this type the “Detective.”</p>
		

Actor	G:0, N:1, S:1	<p>Playing for fun, expecting a serious outcome from the game, and enjoying the immersion of the narrative.</p> <p>Most of these players are similar to larp enthusiasts, so they do not have a strong sense of winning. Compared to reasoning, the story of the role-playing performance is more important. They enjoy the benefits that this scripted immersion brings to them in reality, such as performance ability training, pulling on other players' emotions, and creating atmosphere.</p> <p>Therefore, we called this type the "Actor."</p>
Politician	G:0, N:0, S:1	<p>Playing for fun, expecting a serious outcome from the game, and enjoying the interaction with other players.</p> <p>Typically these players use Jubensha as a channel to train their social, acting, oratory, and even lying skills.</p> <p>They are more interested in the training that the game process gives them in various skills than in the existence of the game itself; therefore, we called this type the "Politician."</p>
Socializer	G:0, N:0, S:0	<p>Playing for fun, expecting to get relaxed from the game, and enjoying the interaction with other players.</p> <p>Typically, these participants play games as a channel to pass the time with friends. The same holds true for replacing Jubensha with other things, such as drinking or karaoke together.</p> <p>Therefore, we called them the "Socializer."</p>
Viewer	G:0, N:1, S:0	<p>Playing for fun, expecting to get relaxed from the game, and enjoy the immersion of the narrative.</p> <p>Most of these players are similar to larp lovers, so they do not have a strong desire to win. Compared to reasoning, the story of the script performance is more important, and they hope to be moved or entertained by the story emotionally.</p> <p>They are more like the audience of a play, only more actively engaged and interactive; therefore, we called this type the "Viewer."</p>

5. RESEARCH DISCUSSION AND CONCLUSION

This paper combs the origin, development history, and recent popular phenomena in China, and the universal process of murder mystery games. Based on this background, this study introduces Bartle's (1996) Player Taxonomy model and GNS theory (Kim 2003; Edwards 2001), establishing a coordinate system to differentiate the players of MMGs. The categorization of players can help to create the scripts of MMGs, and also can serve as a foundation for the subsequent research on MMGs.

There are many different scripts on the market, with mixed reviews. Our analysis of the player classification model of MMGs can provide scriptwriters with certain reference opinions -- when a script can meet the conditions of diverse players as much as possible, the overall evaluation of the script will naturally increase. Moreover, the needs of the eight types of players do not need to conflict within the same script. If a MMG script has sophisticated murder techniques and logical puzzles; rich storylines and tasks; deeply drawn characters and interpersonal relationships; meaningful motives and clues for committing crimes; smooth narrative expression; sufficient space for debate and interaction; and a certain degree of difficulty but a relatively fair game competition environment, the script is highly likely to be a success.

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REFERENCES

- Barros, Gabriella A. B, Antonios Liapis, and Julian Togelius. 2016. "Murder Mystery Generation from Open Data." Proceedings of the *Seventh International Conference on Computational Creativity*, Paris, France, June 2016. 197-204.
- Bartle, Richard A. 1996. "Hearts, Clubs, Diamonds, Spades: Players Who Suit MUDs." *Journal of Virtual Environments* 1, no. 1.
<http://www.arise.mae.usp.br/wp-content/uploads/2018/03/Bartle-player-types.pdf>
- . 2003. *Designing Virtual Worlds*. New Riders.
- Bowman, Sarah Lynne, and Kjell Hedgard Hugaas. 2021. "Magic is Real: How Role-playing Can Transform Our Identities, Our Communities, and Our Lives." In *Book of Magic: Vibrant Fragments of Larp Practices*, edited by Kari Kvittingen Djukastein, Marcus Irgens, Nadja Lipsyc, and Lars Kristian Løveng Sunde, 52-74. Oslo, Norway: Knutepunkt. <https://nordiclarp.org/2021/03/09/magic-is-real-how-role-playing-can-transform-our-identities-our-communities-and-our-lives/>
- Blas, Elise A. 2016. "Using a MMG to Teach Evaluation Skills: A Case Study." *Internet Reference Services Quarterly* 21, no. 3-4: 93-100. <https://doi.org/10.1080/10875301.2016.1169468>

- Chen, Yifan. 2019. “‘Jubensha’ Mobile Games: A Three-Dimensional Study of Narrative, Interaction, and Time.” *Journal of Journalism Studies* 3: 26.
<https://xueshu.baidu.com/usercenter/paper/show?paperid=181p04d06u5x0gy0jq750vf0wb140860>
- Deterding, Sebastian. 2017. “Alibis for Adult Play: A Goffmanian Account of Escaping Embarrassment in Adult Play.” *Games and Culture* 13, no. 3: 260–279.
- Edwards, Ron. 2001. “GNS and Other Matters of Role-Playing Theory, Chapter 2.” Indie RPG. <http://www.indie-rpgs.com/articles/3/>
- Falk, Jennica, and Glorianna Davenport. 2004. “Live Role-Playing Games: Implications for Pervasive Gaming.” In *Entertainment Computing ICEC 2004: International Conference on Entertainment Computing*, edited by Matthias Rauterberg, 127-138. Berlin: Springer.
[https://rauterberg.employee.id.tue.nl/publications/books/Rauterberg-2004\(ed\)%20EntertainmentComputing-ICEC-2004.pdf](https://rauterberg.employee.id.tue.nl/publications/books/Rauterberg-2004(ed)%20EntertainmentComputing-ICEC-2004.pdf)
- Hasanah, Fatwatul, and Desvalini Anwar. 2018. “Teaching Speaking Recount Texts to Senior High School Students through ‘MMG Game’.” *Journal of English Language Teaching* 7, no. 1: 244-254. <https://ejournal.unp.ac.id/index.php/jelt/article/view/9726>
- Huizinga, Johan. 1958. *Homo Ludens: A Study of the Play-Element in Culture*. Boston, MA: Beacon Press.
- Jennings, Aaron S. 2002. “Creating an Interactive Science MMG Game: The Optimal Experience of Flow.” *IEEE Transactions on Professional Communication* 45, no. 4: 297-301. <https://ieeexplore.ieee.org/document/1097812>
- . 2001. “Murder, Mystery, Game: A Novel Approach to Science Writing.” In *IPCC 2001: Communication Dimensions*. Proceedings IEEE International Professional Communication Conference, 285-291. IEEE. <https://ieeexplore.ieee.org/document/971575>
- Jonsson, Staffan, et al. 2006. “Prosopopeia: Experiences from a Pervasive Larp.” In *Proceedings of the 2006 ACM SIGCHI International Conference on Advances in Computer Entertainment Technology*. <https://dl.acm.org/doi/10.1145/1178823.1178850>
- Kim, John, et al. 1997. “The rec.games.frp.advocacy FAQ: Part I: The Threefold Model.” Darkshire.net. <https://www.darkshire.net/jhkim/rpg/theory/rgfa/faq1.html>
- Mitchell, Alice, and Carol Savill-Smith. 2004. “The Use of Computer and Video Games for Learning: A Review of the Literature.” Great Britain. Learning and Skills Development Agency: Anglia Ruskin University.
<https://dera.ioe.ac.uk/id/eprint/5270/>
- Mohr, Henry, Markus Eger, and Chris Martens. 2018. “Eliminating the Impossible: A Procedurally Generated MMG.” In *AIIDE Workshops*. https://ceur-ws.org/Vol-2282/EXAG_113.pdf

- Parel, Gérald. 2008. *Death Wears White*. 1st Ed. English Trans. Asmodee.
- Salen, Katie, and Eric Zimmerman. 2003. *Rules of Play: Game Design Fundamentals*. Cambridge, MA: MIT Press.
- Shuai, Song-Sheng. 2000. "The Development and Characteristics of Japanese Speculative Fiction." *Foreign Literature Review* 4, no. 8. https://xueshu.baidu.com/usercenter/paper/show?paperid=55e85ee98f1f0dd8a756d68667379925&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&site=baike
- Steamfunk Detectives. 2021. "Origin of the MMG Game." Note.com. <https://note.com/torinomi/n/n7e2c8fae1099>
- Stockdale, Andrew. 2016. "Cluegen: An Exploration of Procedural Storytelling in the Format of MMG Games." In *Proceedings of the AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment: The Workshops of the Twelfth Artificial Intelligence and Interactive Digital Entertainment Conference*, October 8-9, Burlingame, CA. <https://doi.org/10.1609/aiide.v12i2.12896>
- Williams, Dmitri, Nick Yee, and Scott E. Caplan. 2008. "Who Plays, How Much, and Why? Debunking the Stereotypical Gamer Profile." *Journal of Computer-Mediated Communication* 13, no. 4: 993-1018. <https://academic.oup.com/jcmc/article/13/4/993/4583542>
- Wilson Center. N.d. "Serious Games Initiative." Wilson Center. <https://www.wilsoncenter.org/program/serious-games-initiative>
- Yee, Nick. 2005. "Motivations of Play in MMORPGs." In *Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play*. <http://www.digra.org/wp-content/uploads/digital-library/06276.26370.pdf>

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