



What Makes for Successful Game Storytelling in Different Countries? A Comparison Between Japan, Korea and China

Bingcheng Wang, Yun Gong, and Pei-Luen Patrick Rau^(✉)

Tsinghua University, Beijing, China
rpl@tsinghua.edu.cn

Abstract. This paper aims to explore the factors that influence the attitude of players from different countries towards video games. Three steps were taken in this study: (1) Survey construction and distribution to collect players' ratings of the importance of each variable to a game story, and (2) exploratory factor analysis to extract a concise model from the variables. (3) compare the result of three different countries: Japan, Korea and China. One hundred ninety-two data were collected from Korea, and 393 were from Japan. Factor analysis indicates that players from different countries have different factors to consider when judging the story of a game. Chinese players tend to judge a game story from many aspects, such as engagement, scriptwriting, distance from reality, autonomy, values, empathy, competition, multi-challenge, power, physical attractiveness and familiarity. Korea players have fewer factors to consider. Seven factors have been found through factor analysis: engagement, familiarity, competition, power, empathy, scriptwriting and physical attractiveness. Japan has the least factors in three countries. Only four factors were found in the games: world settings, familiarity, competition and autonomy. The potential implementation of the study is to guide game story writing, selection and adaptation.

Keywords: Game story-telling · Culture difference · Exploratory factor analysis

1 Introduction

The video game industry has been proved to be a vast and promising industry with more than 100 billion dollars in revenue each year. According to gamesindustry.biz [1], global games market value rose to 134.9 billion dollars in 2018. More and more game developers focus their attention on the narrative of the story instead of the gameplay, for example, Telltale Games and Quantio Dream are companies known for their storytelling video games. There are mainly three reasons for the emergence of storytelling video games. First, the story is a fundamental part of the video game, and many games are built around a story to communicate emotion, convey values and enhance immersion. Even for online games that do not pay much attention to stories, such as League of Legends, the game also has backgrounds and stories related to each hero. Second, the rise of the live streaming platform has enabled more and more players to

experience the game by watching other people's play. In this way, the game story has become an important factor affecting the viewer's watching experience. Third, with the increasing awareness of intellectual property, a good story can promote the development and sales of peripheral game products.

Modern evaluation model of a game story lies in three aspects: scriptwriting in the traditional movie industry [2], game immersion and playability [3–7], and game motivation studies [8, 9]. However, these models do not involve the creation, selection and adaption of game stories. Unlike the script of the movie, the script of the game is relatively open and free [10], and the plot of the game needs to be modified according to the task design and game design. Especially in the now favourite open world games, the non-linear plot design is also one of the unique charms of the game. So how to design or adapt a good game story is a very worthwhile topic.

Gong et al. [11] proposed a model of eleven dimensions to describe the game-adaptability of stories: engage and explore, script writing, distance from reality, autonomy, values, empathy, competition, multi-challenge, power, physical attractiveness, familiarity. However, because the data was collected only from China, the results of the research may be affected by cultural differences. Besides, previous research on the narrative of the game story is not sufficient, especially the discussion of the game in East Asia is very few. We want to look into this subject and compare the differences between China, Japan and Korea.

This paper aims to compare the factors of the stories that influence game adaptability between China, Japan and Korea. Four steps were taken in this study: (1) Determine variables based on literature and empirical studies, including content analysis and interviews; (2) Survey construction and distribution to collect players' ratings of the importance of each variable to game playability; and (3) exploratory factor analysis to extract a concise model from the variables. (4) Compare the result of three different countries: Japan, Korea and China. The potential implementation of the study is to guide game story writing, selection and adaption, not only for game designers but also for the leads of gamification projects on a broader domain.

2 Related Works

2.1 Game Design Evaluation

Previous research proposed several video game design and evaluation heuristics for enhancing the immersion, playability, enjoyment of gameplay [3–7]. Malone [3] first introduced a heuristics model for video games including three features: challenge, fantasy and curiosity. Clanton [4] suggested a series of usability guideline for video games from three aspects: game interface, game mechanics and gameplay. Federoff [7] then enriched the list of guidelines based on a case study of a game design team. In his research, Federoff recommended a user-centred approach to game design, which includes prototyping, postmortems, expert evaluations, and resources to implement usability. In Heuristic Evaluation for Playability model [5], game story was included as one of the evaluation categories. Game flow was first introduced by Sweetser and Wyeth [6], which focus on player enjoyment in games rather than usability. Eight

elements were included in the model: Concentration, challenge, skills, control, clear goals, feedback, immersion, and social interaction. Gong et al. [11] conducted an exploratory factor analysis (EFA) and proposed a model of eleven dimensions to describe the game-adaptability of stories: engage and explore, script writing, distance from reality, autonomy, values, empathy, competition, multi-challenge, power, physical attractiveness, familiarity. In this model, engage and explore are the most significant factors.

2.2 Game Motivation

Both empirical literature [9, 12] and theoretical research [13] found that games can offer experiences that fulfil people needs. Bartle [12] first proposed a player type model and the players were categorised into four types: explorers, achievers, killers and socialisers. Explorers' motivation is the curiosity for knowledge of the internal contents and machinations of the game. Achievers tend to accomplish game-related goals, advance to higher levels and gather treasures and points. Killers are fulfilled when they cause massive distress to other players. Socialisers are more willing to maintain inter-player relationships. Based on the player type model, Yee [9] conducted a factor analysis study on the motivation for gameplay. A principal component analysis revealed ten factors, which fit into three categories: Achievement, Social and Immersion. Achievement players seek advancement, and they want to learn mechanics and enjoy competition. Social players prefer in-game relationships and teamwork. Immersion players enjoy the experience in exploring the virtual world, customising their characters and escaping from the real world. Theoretical works [13] on the motivations for game playing are mainly rooted in self-determination theory. According to self-determination theory, both intrinsic motivation and extrinsic motivation are important for understanding what people want out of a game. Intrinsic motivation refers to the fundamental needs of human beings such as competence, autonomy and relatedness whereas extrinsic motivation comes from external sources such as reward, punishment or self-esteem pressure. In Ryan and Deci's work [8], they proposed three aspects of intrinsic motivation: competence, autonomy and relatedness. Competence needs refer to the necessity of challenge and feelings of capability. Autonomy needs refer to feel that decision making will impact results. Relatedness needs refer to the needs for social interaction.

2.3 Culture Difference

One of the most famous culture difference models is Hofstede's cultural dimensions theory [14]. In this theory, Hofstede proposed six dimensions to describe culture difference: power distance, individualism/collectivism, uncertainty avoidance, masculinity/femininity, long/short-term orientation, indulgence/restraint. Many researchers [15–17] have found that gender plays a vital role in video games, which are related to masculinity/femininity in Hofstede's model. Some other researchers [18] also found that individualism/collectivism also contribute to the culture difference in the games. Many eastern players in games are more collectivism whereas western players prefer to act

alone. Although some works have been done in the field, further culture difference in video games storytelling still needs investigation.

3 Methodology

In this study, we collected data through survey and expounded the results by exploratory factor analysis. The purpose of exploratory factor analysis is to reduce the dimensionality of the data so that we can more accurately find the difference in the attitude of players in different countries to the game story.

The questionnaire used in the experiment was from Gong's et al. [11] research. In this study, the researchers obtained 45 factors related to the narrative of the game story through literature research, expert interviews, and content analysis. The 45 factors are shown in Table 1. The questionnaire also includes demographic information, game preference, maximum game-playing frequency, current game-playing frequency, subjective ratings on expertise, overall rating on the importance of storytelling in game-play, and ratings on the importance of each variable with a statement. A 7-point Likert scale was adopted for each question requiring a rating of attitude. One represented strongly disagree, and seven represented strongly agree.

Table 1. Items in the questionnaires

Storytelling	Game design	Game motivation	Others
Main plot	Comprehension	Advancement	Power
Subplot	Challenge & skills	Competition	Heroism
Character personality	Curiosity	Discover	Rival camp
Character preference	Concentration	Role-play	Counter strike
Structure	Control	Socialising	Strategy
Logic	Empathy	Teamwork	Romance
Ending	Empathy 2	Customisation	Attractive female character
World conception	Familiar events	Escape	Attractive male character
Goal	Familiar conception of world	Autonomy	
Profound insight	Familiar character	Relatedness	
Values	Adapt from famous history	Relatedness 2	
	Adapt from famous literature, films, TV	Competency	
	Adapted into films, literature, films, TV	Violence	

In our survey, experienced game players were targeted as participants. To filter inexperienced game players, the following pre-screening requirement was added: love video games; spend much time on video games; have played video games with stories. Those who failed to meet the requirements were filtered out. The questionnaire was introduced as an "investigation of game preferences in Japan/Korea", without informing participants of the actual purpose of the study.

4 Result and Analysis

4.1 Japan

The results of the Japanese data were commissioned by a questionnaire company. A total of 393 valid data were collected. Exploratory factor analysis was conducted to find the structural characteristics of the questionnaire. We used Kaiser Test ($KMO = 0.97$) to reveal the significant correlation between items, which means that the items have enough common information. The EFA enabled the reduction of the items into factors that are comparatively less correlated. The procedure of EFA is as follows. First, factors with an eigenvalue larger than 1 were extracted. A component matrix was calculated and rotated relative to orthogonal rotation for further interpretation. Quartimax rotation was adopted in this study to get factors with lower correlation. After the calculation, the following conditions were imposed: (1) the communality should be larger than 1 for most variables; (2) the total variance should be larger than 0.5; (3) The factor loading of each item should be larger than 0.45, and (4) there should be no items with two factor loadings larger than 0.45. If these conditions were not satisfied, the items violating the conditions were deleted one by one until all of the conditions were met. As a result, four factors were extracted. The results of EFA were shown in Table 2.

Table 2. Rotation matrix of Japanese data

Items	Components			
	1	2	3	4
World conception	0.87			
Structure	0.84			
Character preference	0.82			
Main plot	0.82			
Logic	0.81			
Goal	0.81			
Values	0.78			
Subplot	0.77			
Character personality	0.74			
Curiosity	0.72			
Profound insight	0.72			
Comprehension	0.69			
Empathy	0.66			
Empathy 2	0.6			
Challenge & skills	0.58			
Advancement	0.57			
Concentration	0.56			
Ending	0.53			

(continued)

Table 2. (continued)

Items	Components			
	1	2	3	4
Escape	0.52			
Adapt from famous history		0.87		
Adapted into films, literature, films, TV		0.86		
Adapt from famous literature, films, TV		0.85		
Familiar character		0.81		
Familiar conception of world		0.8		
Familiar events		0.68		
Teamwork		0.65		
Control		0.54		
Socialising		0.49		
Attractive female character			0.76	
Counter strike			0.73	
Rival camp			0.69	
Heroism			0.68	
Attractive male character			0.66	
Violence			0.64	
Power			0.6	
Strategy			0.58	
Romance			0.58	
Competency			0.57	
Competition			0.56	
Relatedness				0.64
Relatedness 2				0.55
Discover				0.53
Role-play				0.52
Customisation				0.52
Autonomy				0.49

4.2 South Korea

The results of the Japanese data were collected at a university in South Korea. A total of 192 valid data were collected. Exploratory factor analysis was conducted to find the structural characteristics of the questionnaire. We used Kaiser Test ($KMO = 0.93$) to reveal the significant correlation between items, which means that the items have enough common information. The EFA enabled the reduction of the items into factors that are comparatively less correlated. The procedure of EFA is as follows. First, factors with an eigenvalue larger than 1 were extracted. A component matrix was calculated and rotated relative to orthogonal rotation for further interpretation. Quartimax rotation was adopted in this study to get factors with lower correlation. After the calculation, the following conditions were imposed: (1) the communality should be

larger than 1 for most variables; (2) the total variance should be larger than 0.5; (3) The factor loading of each item should be larger than 0.45; (4) there should be no items with two factor loadings larger than 0.45. If these conditions were not satisfied, the items violating the conditions were deleted one by one until all of the conditions were met. Following the procedure, power, relatedness, concentration was eliminated. As a result, seven factors were extracted. The results of EFA were shown in Table 3.

Table 3. The results of EFA

Items	Components						
	1	2	3	4	5	6	7
Structure	0.85						
Logic	0.84						
Main plot	0.84						
Character personality	0.81						
Subplot	0.8						
World conception	0.79						
Profound insight	0.62						
Ending	0.62						
Challenge & skills	0.61						
Curiosity	0.58						
Goal	0.58						
Character preference	0.57						
Values	0.55						
Customisation	0.52						
Empathy	0.52						
Discover	0.46						
Adapted into films, literature, films, TV		0.84					
Adapt from famous literature, films, TV		0.83					
Familiar character		0.83					
Adapt from famous history		0.81					
Familiar conception of world		0.81					
Familiar events		0.78					
Competency			0.76				
Violence			0.7				
Relatedness 2			0.65				
Empathy 2			0.58				
Advancement			0.45				
Heroism				0.84			
Counter strike				0.68			
Competition				0.63			
Rival camp				0.58			

(continued)

Table 3. (continued)

Items	Components						
	1	2	3	4	5	6	7
Teamwork				0.51			
Escape					0.58		
Socialising					0.54		
Autonomy					0.54		
Role-play					0.53		
Control						0.71	
Comprehension						0.55	
Strategy						0.51	
Romance						0.67	
Attractive male character							0.78
Attractive female character							0.56

5 Discussion

5.1 Evaluating the Game-Adaptability of Stories in Japan

The result proposes an evaluation model with four factors based on players' ratings to measure the game-adaptability of stories in Japan. The first factor is mainly about scriptwriting, which includes many items like world conception, structure, character preference, main plot, logic, goal, values, subplot, character personality, curiosity, profound insight, comprehension, empathy, challenge & skills, advancement, concentration, ending, escape. The second important factor from the perspective of the Japanese player is familiarity. Japanese players are more willing to play the games adapted from famous history, literature, films and TVs. Familiar character, event and world conception also contribute to the popularity of games in Japan. Social items like teamwork, socialising is also categorised into this factor mainly because player think that a game from a familiar story may help them find a common topic. The third important factor from the perspective of Japan is character and power. Japanese players are attracted by the charm of the characters in games, especially female characters. The character power also attracts them in games such as counter strike, rival camp, heroism, violence, power, strategy, romance, competency and competition. Autonomy is the last factors taken into account why Japanese players choose a video game. This factor includes relatedness, discover, role-play, customisation and autonomy.

5.2 Evaluating the Game-Adaptability of Stories in Korea

The result of EFA indicates that the evaluation model for game-adaptability in Korea consists of seven factors: scriptwriting, familiarity, empathy, competition, autonomy, comprehension and physical attractiveness. Scriptwriting includes structure, logic, main plot, character personality, subplot, world conception, profound insight, ending challenge & skills, curiosity, goal, character preference, values, customisation,

empathy, discover. Korean players are also willing to play the games adapted from famous history, literature, films and TVs. Korean players think that empathy is an essential factor when they play video games, and they are more likely to be influenced by emotion in games. Korean player also like competition which includes heroism, counter strike, competition, rival camp and teamwork. Factor autonomy consists of escape, socialising, autonomy and role-play. Factor comprehension includes control, comprehension, strategy and romance. The last factor is physical attractiveness which includes attractive male characters and attractive female characters.

5.3 Comparison Between Japan, South Korea and China

In previous research, Gong et al. [11] proposed an evaluation model of 11 factors for Chinese players: engage and explore, script writing, distance from reality, autonomy, values, empathy, competition, multi-challenge, power, physical attractiveness, familiarity. Because the study shared the same questionnaires and methods used in our research, the results are comparable to some degree. Thus, we compared the differences in preferences between China, Japan and Korea in game story-telling.

A comprehensive comparison of the factor analysis results of the three countries of China, Japan and Korea shows that the number of factors in the three countries is different. There are up to 11 factors in China. The number of factors in Japan is the least, only four. The number of factors reflects the variety of evaluation criteria for a game story. A large number of factors indicates that the player will think more from a perspective when he or she evaluates a story into a game, and the small number of factors means that the player the taste of the game story is more consistent. The difference between China, Japan and South Korea may be due to the different degrees of development of the game industry in the three countries. Japan started too early in the game field and produced many excellent games. Therefore, Japanese players have more experience in evaluating the quality of a game story, and they are more likely to reach a consensus. For players in China and South Korea, the history of the game industry is not as long as that of Japan, so there will be less experience in this area. Besides, with the development of mobile technology, more and more emerging players are starting to play games on mobile phones, and there are many differences between mobile games and traditional stand-alone games. These various reasons have caused differences between the three countries.

6 Conclusion

This paper aims to explore the factors that influence the attitude of players from different countries towards video games. Factor analysis indicates that players from different countries have different factors to consider when judging a story of a game. Chinese players tend to judge a game story from many aspects, such as engagement, scriptwriting, distance from reality, autonomy, values, empathy, competition, multi-challenge, power, physical attractiveness and familiarity. Korea players have fewer factors to consider. Seven factors have been found through factor analysis: engagement, familiarity, competition, power, empathy, scriptwriting and physical

attractiveness. Japan has the least factors in three countries. Only four factors were found in the games: world settings, familiarity, competition and autonomy. The difference between the three countries is related to the culture difference and their experience in game story-telling. There are some limitations to this research. First, we only compare the differences between China, Japan and South Korea. There are many similarities between the three countries. The differences between the East and West for game stories have not been studied. We believe that comparing the differences between the East and the West in game story-telling will give us more insights. Second, we study their preference for storytelling from the perspective of the player, and game developers and game companies might hold a different idea toward a game story. Therefore, considering this issue from their perspective should also be one of the research directions.

References

1. James, B.: Global games market value rising to \$134.9bn in 2018. <https://www.gamesindustry.biz/articles/2018-12-18-global-games-market-value-rose-to-usd134-9bn-in-2018>
2. Glassner, A.: Interactive storytelling: people, stories, and games. In: Balet, O., Subsoll, G., Torguet, P. (eds.) ICVS 2001. LNCS, vol. 2197, pp. 51–60. Springer, Heidelberg (2001). https://doi.org/10.1007/3-540-45420-9_7
3. Malone, T.W.: Heuristics for designing enjoyable user interfaces: lessons from computer games. In: Proceedings of the 1982 Conference on Human Factors in Computing Systems, pp. 63–68. ACM, New York (1982)
4. Clanton, C.: An interpreted demonstration of computer game design. In: CHI 1998 Conference Summary on Human Factors in Computing Systems, pp. 1–2. ACM, New York (1998)
5. Desurvire, H., Caplan, M., Toth, J.A.: Using heuristics to evaluate the playability of games. In: CHI 2004 Extended Abstracts on Human Factors in Computing Systems, pp. 1509–1512. ACM, New York (2004)
6. Sweetser, P., Wyeth, P.: GameFlow: a model for evaluating player enjoyment in games. *Comput. Entertain.* **3**, 3 (2005)
7. Federoff, M.A., Federoff, M.A.: Heuristics and usability guidelines for the creation and evaluation of fun in video games. Indiana University, Bloomington (2002)
8. Deci, E.L., Ryan, R.M.: The “What” and “Why” of goal pursuits: human needs and the self-determination of behavior. *Psychol. Inq.* **11**, 227–268 (2000)
9. Yee, N.: Motivations for play in online games. *CyberPsychol. Behav.* **9**, 772–775 (2006)
10. Qin, H., Rau, P.-L.P., Salvendy, G.: Measuring player immersion in the computer game narrative. *Int. J. Hum.-Comput. Interact.* **25**, 107–133 (2009)
11. Gong, Y., Wang, B., Rau, P.-L.P., Huang, D.: What makes for successful game storytelling? A model for evaluating game-adaptability of stories in China. In: Rau, P.-L.P. (ed.) CCD 2018. LNCS, vol. 10912, pp. 30–45. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-92252-2_3
12. Bartle, R.: Hearts, clubs, diamonds, spades: players who suit MUDs. *J. MUD Res.* **1**, 19 (1996)
13. Ryan, R.M., Rigby, C.S., Przybylski, A.: The motivational pull of video games: a self-determination theory approach. *Motiv Emot.* **30**, 344–360 (2006)

14. Hofstede, G.: *Culture's Consequences: International Differences in Work-Related Values*. SAGE, Thousand Oaks (1984)
15. Julie, P.: *Gender Divide and the Computer Game Industry*. IGI Global, Hershey (2013)
16. Law, E.L.-C., Gamble, T., Schwarz, D.: Gender and cultural differences in perceiving game characters of digital educational games. In: Gross, T., Gulliksen, J., Kotzé, P., Oestreicher, L., Palanque, P., Prates, R.O., Winckler, M. (eds.) *Human-Computer Interaction – INTERACT 2009*, pp. 149–153. Springer, Heidelberg (2009). https://doi.org/10.1007/978-3-642-03655-2_19
17. van Reijmersdal, E.A., Jansz, J., Peters, O., van Noort, G.: Why girls go pink: Game character identification and game-players' motivations. *Comput. Hum. Behav.* **29**, 2640–2649 (2013)
18. Wohn, D.Y.: Gender and race representation in casual games. *Sex Roles* **65**, 198–207 (2011)