

The Impact of Playing Experience of History-Fiction-Mixing Games on Players' Historical Knowledge

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INTRODUCTION

Based on the long and rich history of China, lots of Chinese games tell new stories using some Chinese historical background. This type of games mixes real with fictional people, environment, and artifacts. For example, *Moonlight Blade* is a popular Chinese MMORPG game of this kind. It is adapted from *Gu Long's* martial arts fiction with the same name. This game has a specific historical background (Northern Song Dynasty of China) but narratives a story different from the real history. There is the historical figure named *Liu Yong* in this game mixing with a fictional person named *Fu Hongxue*. This kind of games mixing historical reality and fictional stories doesn't belong to serious games since it does not have educational purpose, but it may have some educational influence on players, especially on their historical knowledge. Taking *Moonlight Blade* as an example, we will answer the following research questions: Does the playing this kind of games (we name it as history-fiction-mixing game) have an impact on the players' knowledge of real history? If so, which kinds of knowledge, namely people, environment, and artifacts, are most affected?

In this research, we design a story-based quiz to test the historical knowledge of participants. The story narratives a long trip occurred in Northern Song Dynasty that covered three main cities involved *Moonlight Blade*. There are 33 blanks in the quiz. For each blank, participants are told to select the option that matches the real history. Three kinds of historical facts are

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involved in the blanks of the quiz, namely people (i.e., names and status), environment (i.e., buildings and river names) and artifacts (i.e., clothes and weapons).

We sent out the quiz on the Baidu Tieba of this game and encouraged participants to forward the quiz to their non-players friends. As a result, we collected 803 answered quizzes of which 686 (85.4%) are effective. Among the participants of the effective quizzes, 488 (71.1%) of them are players and 198 (28.9%) are non-players; 352 (51.3%) are males and 334 (48.7%) are females; 46 (6%), 242 (35.3%), 287 (41.8%) and 111 (16.2%) are with age less than 18, between 19 and 23, between 24 and 28, and older than 29 respectively.

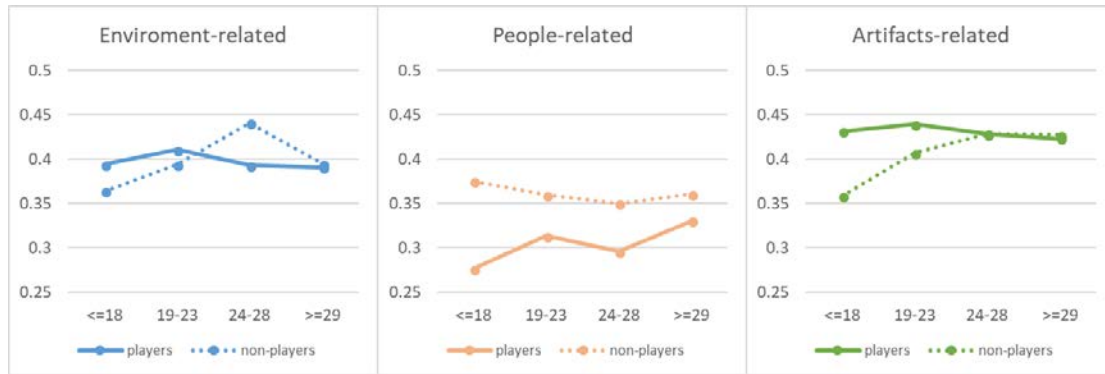
To evaluate the impact of playing experience on historical knowledge, we compare the correctness of players with that of non-players. For a given set of blanks, e.g., all blanks or artifacts-related blanks, we compute the average correctness of each group to evaluate the difference in historical knowledge and then perform a T-Test to see if the difference are significant. Finally, we disaggregate the analysis by the age range or gender of the participants to evaluate if the impact of playing experience differ across demographics.

Based on the average correctness and T-Test result, we have the following major observations. When all blanks are considered, the average correctness of all players is slightly worse than non-players, but the difference is not significant. Gender groups have no influence on the difference in correctness. However, the impact of playing experience differs in different age groups. Players in younger groups perform better than non-players, while in older groups players perform worse and the difference is significant in age 24-28 group.

The difference in average correctness are different when different sets of blanks are considered. For both players and non-players, the descending order of correctness of different sets of blanks is: artifacts, environment and people. Players perform worse in environment- and people-related blanks but better in artifacts-related blanks than non-players. The difference of correctness for people-related blanks is significant.

	blanks correctness			
	all	environment-related	people-related	artifacts-related
All participants	39.63%	40.23%	32.07%	42.72%
Players	39.42%	39.92%	30.59%	43.18%
Non-players	40.14%	41.00%	35.71%	41.58%
Difference between players and non-players	-0.72%	-1.08%	-5.12% **	1.60%

For each age group, players perform worse than non-players in people-related blanks. But the degree of negative impact of playing experience decreases as age group increases. For environment-related blanks, younger players achieved higher correctness than younger non-players while older players achieved lower than non-players. For artifacts-related blanks, the correctness achieved by players is roughly the same across different age groups, while the correctness increases as age groups increase for non-players. Younger players perform better than younger non-players, but older players perform similarly with older non-players.



Given the observations, we think the following issues are worth further discussion and research.

The impact of playing experience on historical knowledge differ across age group and (24-28)-year-old is an interesting separation point. Playing experience has a significant negative impact on the performance on all blanks of the age group 24-28. For age groups younger than 24-year-old, the playing experience have a positive impact on quiz performance, while for age groups older than 28-year-old, the playing experience have a negative impact. One possible hypothesis is the older the participant is, the more historical knowledge he/she has before playing the game. For younger participants, because they insufficient historical knowledge for the quiz, the playing experience provide more real historical facts for them to perform better. But for older participants, the fictional and unreal facts in games confuse the participants and thus they perform worse. Further research is needed to explain the different impact in different age groups.

The impact of playing experience differs in different types of historical facts. Playing experience has a positive impact on artifacts-related blanks (i.e., players performs better than non-players) and a negative impact on people-related blanks. These two impacts are consistent across age groups. But the impact on environment-related blanks differs in different age groups. This observation suggests that players seem to be able to absorb information about real historical artifacts in games but get confused by fictional people-related information. The ability to distinguish real from fictional environment information is age-related. Compared with people and artifacts, the knowledge of environment stems more from live experience because most historical environmental information is still used in real life (e.g., the names of cities and rivers are the same at the present time and in the history).