

# Evaluation of Serious Gaming on Mobile Platforms in an Art Historical Context

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## Context

Art is booring!

The field of art history still inheres the cliché of being boring. It is difficult to encourage new audiences to get in contact with art history.



„Serious Games“ are games that provide an additional goal besides having fun, for example learning or training.

### Games are fun!

Playing is not only fun, but can also provide additional educational value in form of *Serious Games*. In the last years the field of Serious Games has seen an incredible boost in research as well as in economy.

### Smartphones are booming!

Mobile systems are available in form of several platforms like Google's Android and Apple's iOS, offering powerful graphic processing units for creating games. Studies show that the mobile game market is shifting from dedicated gaming devices like Nintendo DS and PlayStation Portable to smartphones. *Casual Gaming* captures new target groups for the gaming market.

The resulting game was named: „ARTournament“

ARTournament represents a classical guessing game. Four images of artworks are presented to the user. The player has to choose which object matches the level's criteria. The differences between the presented artworks get subtler with increasing difficulty levels.

## Game Prototype

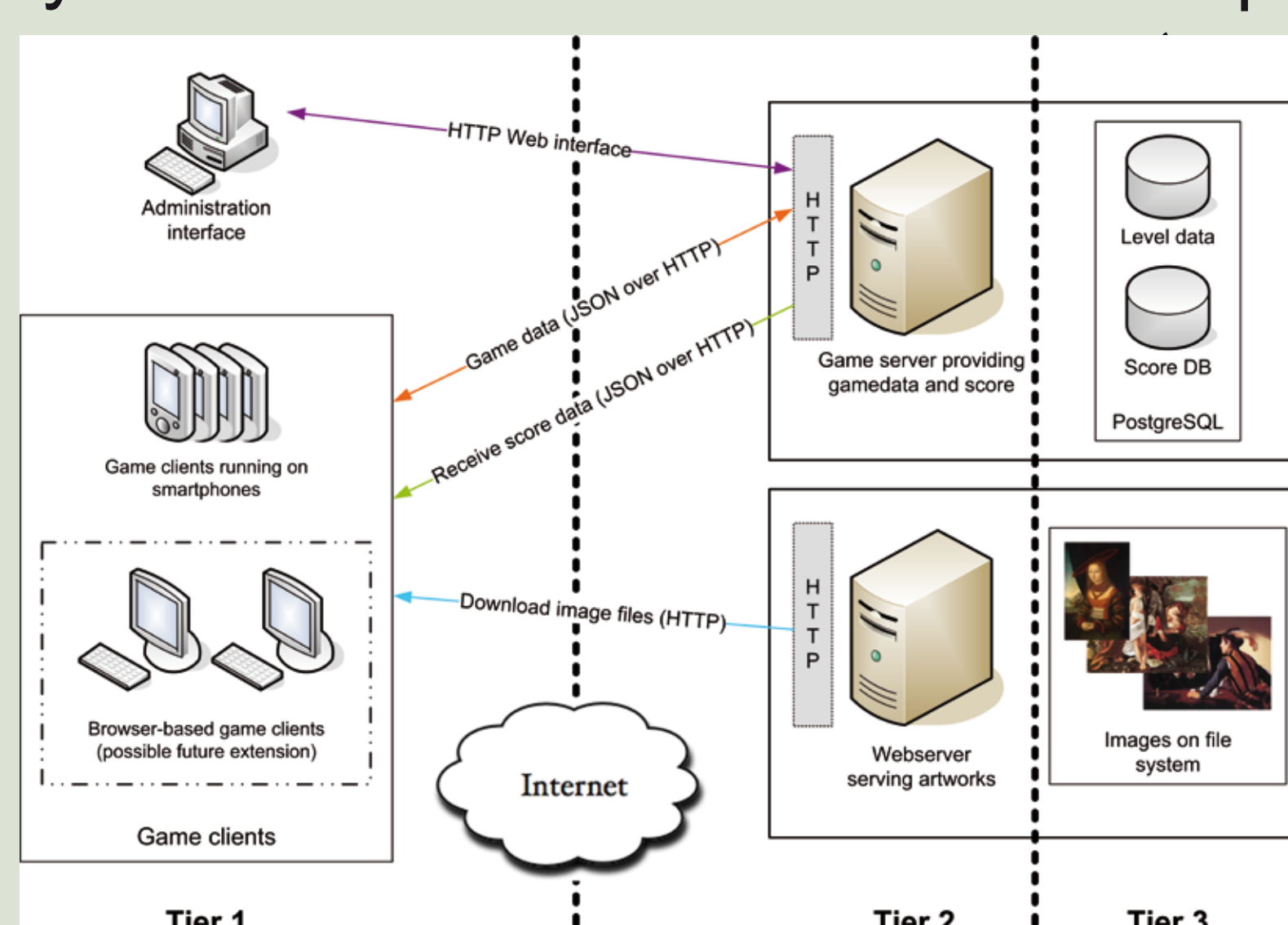


Two screenshots showing the game's user interface.

The game is server-based and implements a three tier architecture. The game server delivers information on which artworks to display and receives the user's answers. The images are stored centrally on a web-server.

Additionally a global high-score service is maintained on the game server.

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Overview on the ARTournament platform

## Questions

- Can serious games be used to mediate art historical content?
- Which possibilities are provided by mobile platforms (Android, iOS) for game development?
- What kind of games could be used in this context?

### After creating a prototypical game:

- How do users interact with the resulting game?
- How can the learning success be measured?
- Will the participants acquire art historical knowledge by playing the game?

## Approach

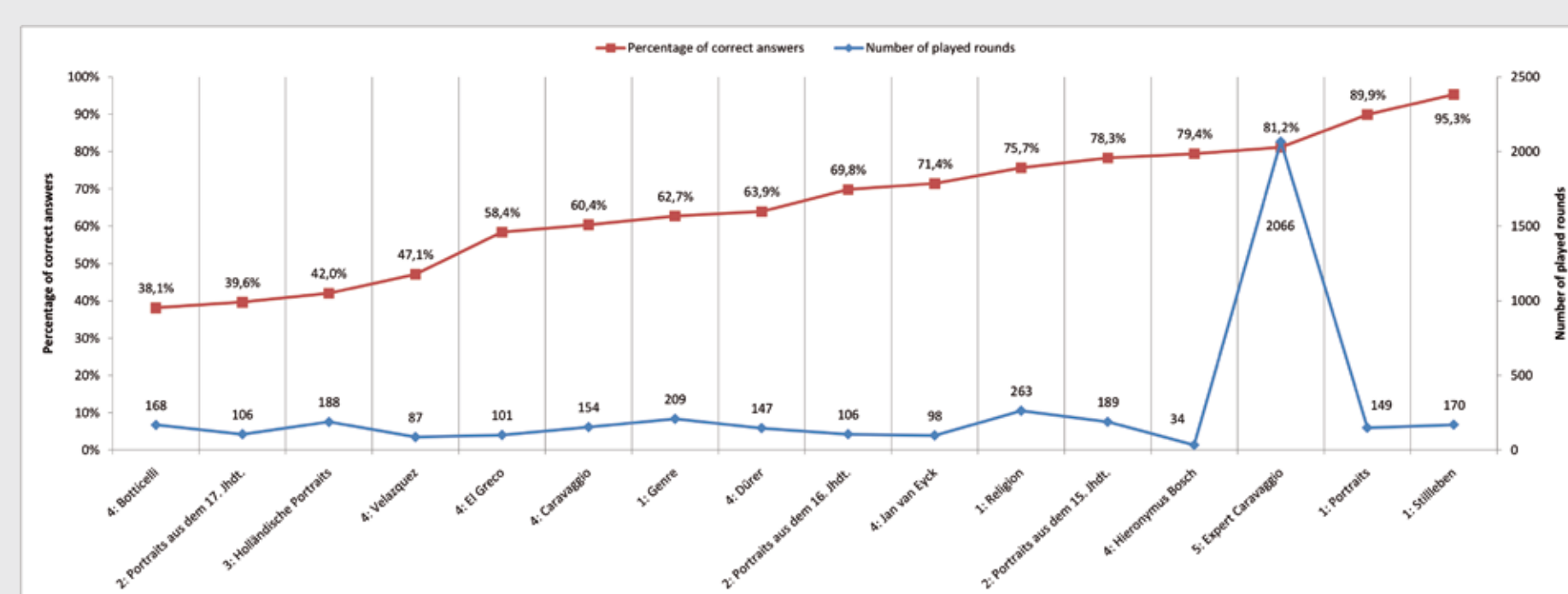
A literature research on concepts of serious games has been done. In order to be able to reach a broad userbase multiple target platforms should be addressed. To achieve this goal different concepts for cross-platform development on smartphones were compared and based on this information the platform *Titanium Mobile* was chosen for realising the creation of a prototypical game.

After a public test run the players' behaviour was evaluated to determine whether learning effects had taken place.

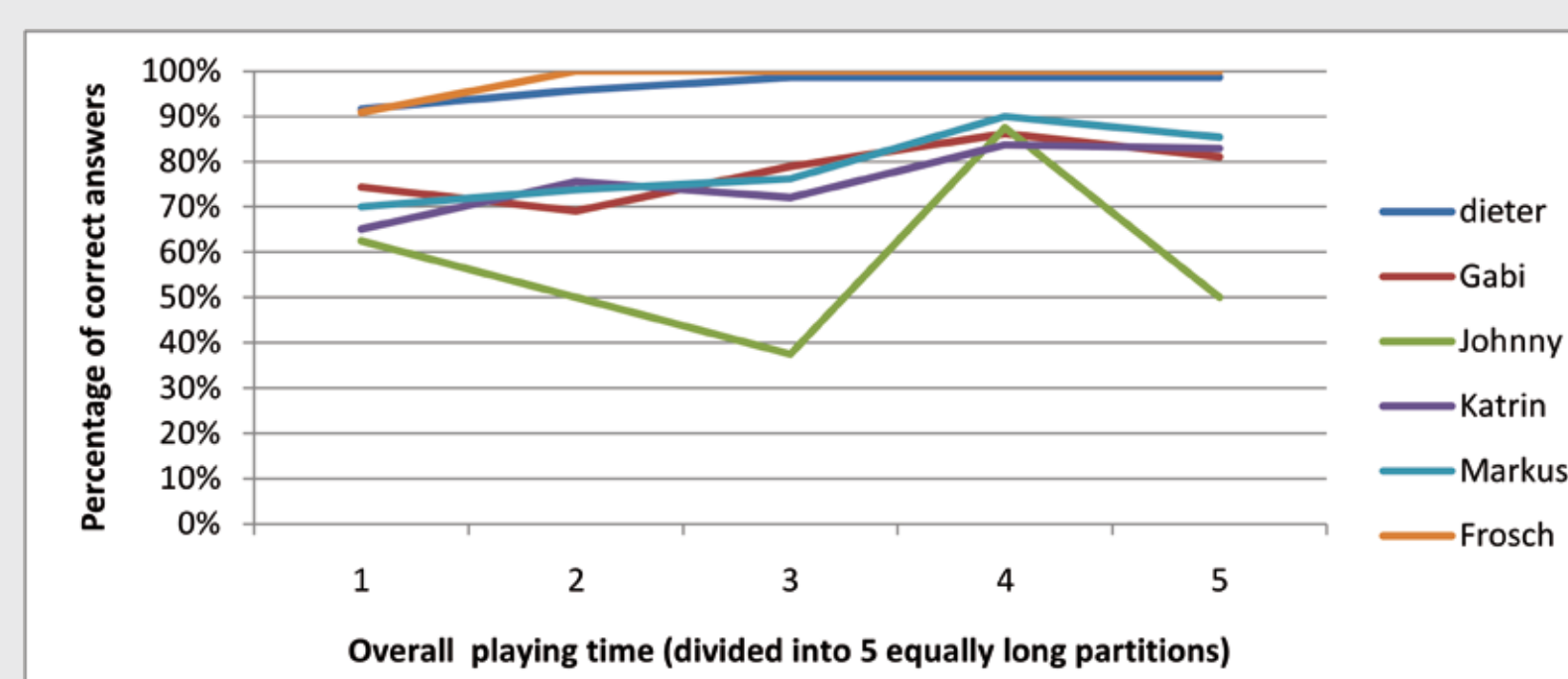
Hypothesis: If the user is able to acquire knowledge on a specific level the percentage of positive answers per time period will increase over the time of gameplay.

## Evaluation and Conclusion

During the testing period 24 participants played over 4000 rounds of the game. Most of the levels showed a high success rate indicating that the users were not blindly guessing the answers. The most played level was among the top three regarding the success rate, indicating that the players acquired knowledge on the level's art historical content over time.



Percentage of correct answer opposed to played rounds per level



Progression of success rate in level „5: Expert Caravaggio“

Analysis of player results indicated that after an initial learning phase the users stayed on a higher level of success rate. Nevertheless, there were also levels where less or none improvements in the player's results were visible indicating that the level goals were not transparent and comprehensible enough.

In conclusion it can be said, that there is some evidence that users were able to acquire knowledge during gameplay. The learning curve increases in the beginning and stabilises in the course of playing time. Furthermore, some points for future improvement have been identified which may contribute to a higher user acceptance and success rate of the game.