

Valory: Simultaneous Control of Avatar and Environment in a Platform Game

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ABSTRACT

This paper describes the design and development of the platform game *Valory*, which relies heavily on multitasking. The player has limited control over the avatar and needs to arrange objects in the game world at the same time. The result is challenging gameplay in which the player has to split her concentration between the avatar and the environment. Two different prototypes were created and playtests were conducted to create a game which is challenging but still leaves the player feeling in control of her actions. Playtests showed that with the right balance between control and complexity, the concept of doing two different tasks at the same time is challenging and enjoyable to players despite being very difficult.

Categories and Subject Descriptors

H.5.2 Information Interfaces and Presentation: User Interfaces (Input devices and strategies); K.8.0 Personal Computing: Games

General Terms

Design; Human Factors

Keywords

game design; control; complexity; challenge; multitasking; Valory; 2D platformer;

1. INTRODUCTION

In platform games, the player usually controls an avatar [1] which has to jump over gaps and obstacles [1] to reach the end of a level. Sometimes, the avatar can interact with objects of the environment, but usually the player does not have the possibility to directly influence or change parts of the game world. Giving the player control over both the avatar and objects of the game world is a new concept which defines the gameplay of *Valory*.

Controlling these two elements at the same time is a challenging task for the player. Challenges that are neither too difficult nor too simple can lead to a state of flow, which creates a feeling of enjoyment and makes an experience satisfying [2]. In [3], challenge and control are described as some of the core elements of flow in games. Games should be sufficiently challenging and

match the player's skill level. At the same time, the player should feel a sense of control over her actions in the game, e. g. over the movement of her avatar. The aim of *Valory* is to create a challenging game that still enables the player to feel in control of what she is doing.

2. THE GAME VALORY

Valory is a 2D platform game in which princess *Valory* pursues a prince. Blinded by love, she tries to run constantly, and is only stopped by objects directly in her path. The player has limited control over the princess: she needs to make *Valory* jump at the right moment to overcome gaps. At the same time she can use objects in the game world to create a safe path for the princess. The player can move or rotate platforms [1] to help *Valory* overcome gaps or avoid dangerous spikes.

The game's controls utilize the spacebar for jumping and clicking and dragging with the mouse to interact with objects of the game world.



Figure 1. Final game. The player can create a walkable path for Valory by moving platforms along the lines.

Games that utilize similar mechanics are *Lucidity* [4], in which the player can influence the game world but does not have any control over the avatar and *Canabalt* [5], which uses the same running-without-stopping mechanic as *Valory* without the capability of using objects of the game world.

3. CONCEPT

The idea to compel the player to split her concentration between two different tasks, i.e. control of the character and the environment, while under time pressure, was a promising but still untested concept. To be able to get a feeling for the resulting game experience, the core mechanics were tested with two different prototypes.

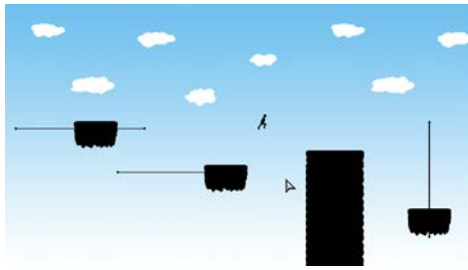


Figure 2. Gameplay Prototype. Some platforms can be moved along the lines. The others are fixed.

3.1 Prototype A

Prototype A is a platform game with inverted mechanics. The player controls parts of the game world but cannot directly influence the avatar that is constantly running from left to right. The player's task is to safely get the avatar to the end of the level. In the game world, some platforms are fixed, but some are moveable by the player using mouse input.

In Prototype A, a jump action is triggered automatically as soon as the avatar reaches the end of a platform. When the avatar reaches large gaps that cannot be overcome by a standard jump action, the player has to use the mouse to drag a moveable platform towards the avatar to provide safe ground. Now the player has two different choices:

Force a jump: as soon as the avatar reaches the end of the platform, a jump action is performed. The player can move the platform to the left so that the avatar reaches the end of the platform more quickly. Using this mechanic the player can control when the avatar leaves the platform.

Keep the platform beneath the running avatar: if the player keeps the platform in the same position relative to the avatar, the avatar will continue running on the platform. This way the player can guide the avatar over large gaps.

3.2 Prototype B

Prototype B represents the new concept. Instead of featuring an automatically jumping avatar, the player needs to initiate the jump by pressing the spacebar. Thus, she has to split her concentration between avatar and environment. Everything else is the same as in Prototype A. The addition of manual jumping resulted in a more demanding game experience.

3.3 Playtest

A playtest was conducted using these two prototypes. Players provided qualitative feedback after they played the game. The goal was to find out if players enjoyed the challenge of splitting their concentration between two different tasks.

24 players, 16 male and 8 female, played both prototypes. Half of them started playing Prototype A and the other half of them started playing Prototype B. The players' age ranged from 17 to 54. 15 participants were students.

20 people found Prototype B more entertaining, while four thought that it was too stressful. [6] describes a study using the

same prototypes with the result that the higher complexity of Prototype B led to higher arousal values of all participants.

4. DESIGN

The playtest led to the conclusion that stressful gameplay, in which the player has to control the avatar and parts of the environment at the same time, appeals to players.

The levels were restricted to a very short length. This way the players only needed to replay short passages of the game if they died, thus reducing frustration. Additionally the players' motivation could be kept higher because the goal was visible most of the time.

The jump behavior turned out to be a very complex issue. Due to the fast pace of the game, mechanics such as charging jump lengths could not be used, as they were too slow. Since the jump behavior needed to provide as much control as possible, fixed jump lengths didn't appeal to the audience either. The final solution provided instant lift off, but also variable jump length which received high acceptance from the players.

5. CONCLUSION

In *Valory*, the player controls a constantly running avatar that has to jump over gaps and obstacles. At the same time she has to arrange objects in the environment to create a safe passage. Thus, *Valory* requires the player to split her concentration between the avatar and the environment, which is particularly challenging. *Valory* showed that the recurring switching of focus is demanding, but the right balance of control and complexity can turn it into an enjoyable experience.

6. ACKNOWLEDGMENTS

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7. REFERENCES

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